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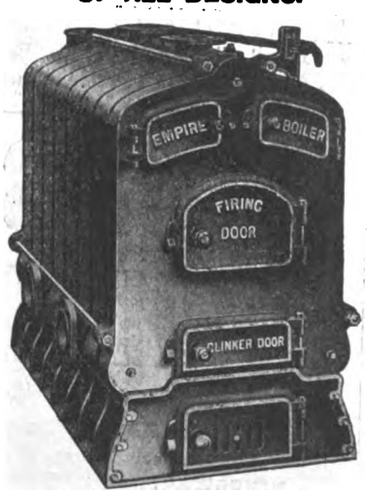
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Quand le bâtiment va, tout va.—PROVERB.

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FORTHCOMING EVENTS.

Saturday, July 3.

Edinburgh Architectural Association : Annual Excursion to Stirling and Dunblane.

Monday, July 5.

Royal Institute of British Architects : Special General Meeting at 8 P.M.

Architectural Association of Ireland : Annual Excursion (two days).

Wednesday, July 14.

Royal Sanitary Institute : Sessional Meeting at Yeovil, at 11.15 A.M.

COMPETITION FOR NEW MUNICIPAL BUILDINGS, STEPNEY.

A COMPETITION for new municipal buildings for any of London's boroughs may usually be trusted to bring forward a large number of designs, and the present dearth of work in the architectural profession has intensified the struggle for a good job. Therefore it is not surprising that the invitation of Stepney has met with an eager response, and a bewildering display of drawings is on view in the Whitechapel Art Gallery.

The problem set to competing architects was by no means easy. The site provided, although rectangular and lighted on all four sides, three of them thoroughfares, as may be seen from the plans of successful competitors which we illustrate, was no more than barely sufficient for the accommodation required, and was hampered by the necessity of avoiding undue injury to the lighting of school buildings on the north side. The accommodation required is that usual in buildings of this character: council chamber, committee rooms, and other accommodation for members, offices for town clerk, borough treasurer, borough engineer, borough electrical engineer, medical officer of health, and borough librarian.

The crux of the problem lay in the very large area, with access for the public, required in the general and rates offices of the borough treasurer; and the first place has undoubtedly been won by Messrs. Briggs, Wolstenholme & Thornely on their transverse section. By restricting their back block to two storeys, the borough treasurer's office is given the height of lower and upper ground floors, and the council chamber above it just fits in within the angle of 45° from the school windows. Thus adequate height is given to the great office of the borough treasurer, which most competitors have starved down with twelve or thirteen feet only. From the plans we illustrate our readers will see that the winning design provides entrances from each thoroughfare, with direct access to the borough treasurer's office and the borough electrical department showroom. A point in which the winning design scores over the second is in the superior character of its secondary stairs. The basement or lower ground floor of the first premiated design contains, besides the borough treasurer's office, the laboratory of the borough engineer and stores, whilst the medical officer of health, the borough librarian, and the housekeeper occupy the second floor. The remaining good points and the character of the external treatment in the winning design can be gathered from our illustration. The cost of this design at the stipulated cubing price is £78,783.

The second premiated design, by Mr. W. Frazer Granger, gives an increased height to the borough treasurer's rates office by descending a few steps from the ground floor level, thus in part gaining the advantage obtained by the winners. It will be observed that Mr. Granger extends his side wings much nearer to the line of the school buildings on the north, which he probably found necessary to compensate for the loss of frontage on the south occasioned by his placing the principal staircase on the front wall. His area thus increased is added to still further by the greater proportion of corridor and staircase as compared with the design placed first. Thus it is not surprising that his figure of the cost works out at £89,838. It can scarcely be said that his design is £11,000, or 12½ per cent., better than the winning one, although it has some points of superiority. The accommodation for the borough engineer and the medical officer of health is provided on the second floor. The external treatment we need not either describe or criticise, as with the illustrations before them our readers can do that for themselves.

The design placed third, which is by Messrs. Poynter & Wenyon, possesses a very pretty plan and is set forth in a very excellent set of drawings, whilst the compactness of the scheme results in and is evidenced by the figure of cost, which cubes out at the stipulated price to £70,092. The prettiness and symmetry of the plan

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are indicative of careful study, despite such obvious defects as a clerks' office 31 ft. 6 in. by 16 ft. 6 in. lit at one end only, drawing office looking east, and a council chamber with only one door. The second premiated design has four. The plan of the council chamber is a radical departure from the usual arrangements, and apparently presupposes that the Stepney Borough Council consists of two parties in opposition, but of even numbers. The external treatment is one of the most satisfactory in the whole of the competition.

The fourth premiated design by Messrs. T. Darbyshire & F. A. Collard provides the necessary accommodation on three floors only. The lower ground floor or basement is allotted to the borough engineer and the caretaker, the upper ground floor to the medical officer of health, the borough electrical engineer, and the borough treasurer, the first floor provides for the town clerk, the council chamber and the members, whilst an attic is labelled "municipal store" and is lighted from the back only. The entrances are arranged similarly to those of the winning design, with two additional ones on the Arbour Square, or south front, for direct access to the lower ground floor. The cost works out at £84,884.

Space will not allow us to speak of all the other designs that are meritorious. For the most part they follow in general disposition the type indicated by the premiated designs; but, just as these vary in detail, so do their less fortunate competitors. Most of the plans show the council chamber at the rear, obviously the correct position, with the principal stair in the middle of the site. Some, however, place this stair on the south front, as is seen in the second premiated design. In some cases the council chamber is placed in the middle of the site, and usually the approach thereto is in these by way of a big and wasteful hall, which, as is evident from the premiated designs, must lead to difficulties when the area of the site is no more than barely sufficient for the building. This competition gave no opportunity for impressive internal scenic effects, and all the attempts at grand halls and sumptuous staircases come to grief over necessary requirements.

Messrs. Nicol & Nicol and also Professor Beresford Pite have indulged in an interesting variant on the general type by laying out their plans in two long wings towards the two Arbour Streets, east and west, with a central block containing the council chamber. Professor Pite, by the way, manages to make his design cube out to only £43,545. Rather a contrast this to Messrs. Gibson, Skipworth & Gordon, who quote a round £100,000. Their plan is E-shaped on the first and second floor, filled in between the wings below, and they place the council chamber on the second floor. Thus their design is strongly variant from the usual type.

Messrs. Lanchester & Rickards ask the assessor to believe that pillared halls, rather more than 180 feet by 100 feet, can be adequately lit from the sides only with a normal height of storeys. Possibly they consider that as the borough of Stepney runs its own electricity supply, it would be as well to provide what all such enterprises desire—a good heavy day-load. They object, too, to the assessor stipulating the price at which their design should be cubed, and suggest that, instead of the £88,500 at which this results, their system of planning and construction could be carried out for £70,000.

Mr. Edwin Cooper considers that a height of 13 feet, floor to floor, is sufficient for the borough treasurer in the basement, which also provides for the librarian, the town clerk's typists, and part of the medical officer's department. The remainder of this latter is placed on the ground floor, with those of the town clerk and the borough electrical engineer. The first floor is devoted to the council, and the second floor to the caretaker and borough engineer, who gets his north light by way of a shaft through the roof. Mr. Cooper's principal elevation shows an elaborate colonnade in five bays, with coupled Corinthian columns. His cost is £81,679.

Mr. H. S. East departs from the prevalent disposition, and makes his entrances from the side roads only, being determined apparently to have no dominant central feature on his principal front, which is composed with twin wing pavilions and a group of three projecting bays between. He places the borough treasurer and electrical engineer in the basement, the council and town clerk on the ground floor, the borough engineer and medical officer of health on the first floor, and manages to do with only one internal court. Economy results, as the cost is kept down to £69,750.

Mr. S. B. Russell follows the winners' arrangement of entrances. He gives part of the basement to the medical officer of health, the remainder of whose department is on the ground floor with those of the electrical engineer and borough treasurer. The town clerk and council occupy the first floor, and the borough engineer the second. The council chamber is placed eccentrically, and the cost is £73,003.

Mr. J. B. Fulton submits a fine elevation, but his borough treasurer's office is hopeless, with a rates office 88 feet by 20 feet, lit by windows at the ends from a court 21 feet wide and, putatively, from the general office, across the public corridor by windows 29 feet away. The estimate of cost is £89,100.

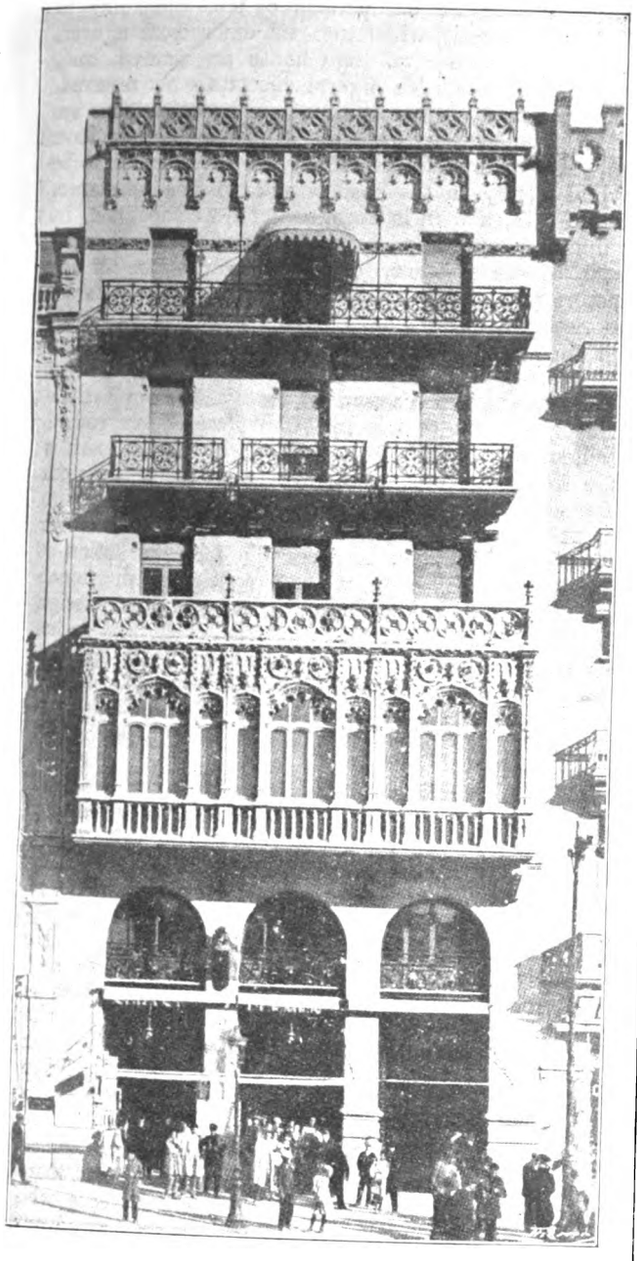
NOTES AND COMMENTS.

MR. WALTER LONG, President of the Local Government Board, in opening the National Road Exhibition must necessarily have felt that under existing circumstances he was ploughing the sands. He pointed out that all developments of road-making were for the time being arrested. Everybody must realise that our Empire was faced with a grave crisis which would require all our energies, resources, and strength, and until it was got over in the only possible way in which any Englishman could contemplate, we must be content to hold our hands and make the best of things. We had to think of the Empire and see what could be done, individually and collectively, to help it, and also to discharge our local duties in a manner which would produce the highest degree of efficiency consistent with the greatest economy and the greatest conservation of all the powers of the country, and so enable it to face the difficulties, as he knew it would, with courage and resolution.

Sir George Gibb, in seconding a vote of thanks to Mr. Long, proposed by Mr. Cyril Jackson, said he was certain that the comprehensive view which the President of the Local Government Board took on the road question was the only one by which a solution of the problem could be obtained.

The Conference and Road Exhibition had, however, been planned before the declaration of war, and Mr. Long was, therefore, justified in making some general remarks, commencing with the observation that it was a matter of great satisfaction that there were exhibits closely connected with labour-saving operations. For some time they would be confronted with the difficulty of securing labour for the work that had to be done, and therefore anything which could help would be of great assistance. When he was last at the Local Government Board it fell to him to pass through Parliament the legislation dealing with ordinary motor-car traffic. So far as traction and the use of roads were concerned, everything had entirely altered in twelve years. It was now, he was sorry to say, the exception to see horses pulling a carriage. One lesson to be learnt to-day by the user of roads was that in the special circumstances they must be patient and content not to find the roads in the condition in which they had been accustomed to find them in recent years. He was glad to know that there had been some changes recently in regard to the question of road maintenance, due to the creation of the Road Board and the granting of large sums of money out of the Imperial Exchequer. Speaking as a member of the Government, it would ill become him to belittle the gifts of the Government, but he could not forget his experience as a private individual, and he knew that the Government had a way of giving gifts of money and associating heavy obligations with them. The perplexed and dismayed ratepayers found at

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[From *Arquitectura y Construccion.*

STREET FRONT IN VALENCIA, SPAIN.
Don FRANCISCO MORA BERENGUER, Architect.

the expiration of a year or two that, although millions of money had been given by the Imperial Exchequer, no relief came to them because the grants were accompanied by labour and new work. He appealed to users of the roads to remember that even as taxpayers they made an infinitesimal contribution to the cost of the roads compared to the damage they did by the particular vehicles they drove. We were only at the beginning of our experience with regard to motor traffic. He was of opinion that they should consider the whole question of motor traffic and how it could be adequately dealt with, and he believed it would be the duty of the Minister occupying his place, when we were in quieter and happier times, to investigate the question and its close relation to the roads of the country.

AT a recent meeting of the Society of Antiquaries Mr. Ralph Griffin read a paper on "The Heraldry in the Cloisters of the Cathedral Church at Canterbury." He described how the rebuilding of the nave at the close of the fourteenth century had led to the reconstruction of the cloisters, which contained no fewer than 825 armorial bosses. There were various manuscripts describing the arms, that of Richard Scarlett in the British Museum, and that of Dr. Thorpe in the Society's library, but the only printed description of them was that of Willement, who thought they were blazoned in their proper metals and colours, but this view was afterwards combated by the Rev. Thomas Streatfeild. A great deal of the discussion on this point was now a matter of opinion, as there was no colour whatever left. Sir William St. John Hope, in the discussion which followed, asked whether the Dean and Chapter would boldly follow the example at Westminster Abbey, and give the cloisters of Canterbury a thorough lime-washing from end to end to preserve them for an indefinite period from the ravages of decay.

We learn that two Heating Studentships, tenable in the Faculty of Engineering of University College, London, each of the value of £50 a year, together with £11 11s., being the amount of College fees, may be awarded in July by the Institution of Heating and Ventilating Engineering. Candidates must produce evidence that they have already pursued a course of Engineering training and are familiar with the work of an Engineering Laboratory. The Research Students will be required to devote their whole time to research work in connection with Heating and Ventilating Engineering. Full particulars can be obtained from the Secretary of University College, London, to whom applications must be made not later than Wednesday, July 7, 1915.

It will come as a surprise to a good many to learn that the Hon. John Collier is not only the painter of "problem pictures" and portraits by which he is so well known to visitors to the Royal Academy, but a landscape painter of considerable attainments, and will shortly make his début as such in an exhibition of sixty canvases, which are to be shown from July 1 onwards at the Leicester Galleries, Leicester Square. Mr. Collier has produced these landscape studies over a period of many years, but they have not before been publicly exhibited. There are scenes in Italy, Egypt, France and elsewhere, some of which have been utilised for the backgrounds of his subject pictures and portraits.

Retention money is usually one of the troubles of a contractor, and we have always felt that the usual arrangements by which the amount retained increases as the contract approaches completion is illogical. The objects of retention can be but two; first, to protect the employer in the event of the lowest tenderer being unable to complete his contract, and the second, to provide for faults in material and workmanship that may develop defects. The risk of the former contingency is greatest at the beginning, and although the extent of the latter is possibly more at the end, the feasibility of its detection is, or should be also increased. In a report of the General Purposes Committee of the Port of London Authority on the contract for their new head offices, we have the old trouble again revived. The report says:—

We are informed that since the contract for the erection of this building was let in November last the prices of materials and labour have greatly increased owing to the war, and in these circumstances the contractors, Messrs. T. W. Heath & Son, have approached us with a view to reducing the amount of retention money kept in the hands of the Board.

This matter is regulated by Clause 43 of the Conditions of Contract, under which the contractors are not entitled to any payment at all until they have done work to the extent of £5,500, that is, 5 per cent. on the amount of the contract, and thereafter the contractors are entitled to receive 95 per cent. on the actual value of the works completed, less 5 per cent. on the amount of the tender.

In view of all the circumstances of the case, we have formed the opinion that some concession may be made to the contractors, but we hold the strong view that this should not be done by way of actual modification of the

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contract, but only by reposing a discretion in the architect.

The extent of this discretion should, of course, be clearly defined, and in our judgment the architect might be authorised, notwithstanding and without prejudice to the terms of the contract, to make payment:—

(*a*) On account after work to the value of $2\frac{1}{2}$ per cent. of the tender has been executed; and

(*b*) Of 95 per cent. on the actual value of the work completed, less $2\frac{1}{2}$ per cent. on the amount of the tender.

The retention money in the hands of the Board would be an increasing sum, but under the proposed concession the amount thereof might be reduced by £2,750.

There is a certain amount of truth in some of the opinions expressed in the following article in *Indian Engineering*, but there are many erroneous postulates on which incorrect arguments are based. Competitions are undoubtedly, in the gross, a waste of effort, but the wasted effort is not skilful. The apparently unrewarded effort, when skilful, is of the nature of an athlete's training exercise. The men who win competitions nowadays are usually not those taken from work on which their daily bread depends, but skilful men who, for some reason or other, can devote their best attention to the effort. Our contemporary puts the matter thus:—

There seems to be a growing feeling among architects that competitions are a mistake; and the architectural profession may certainly take it that members of professions outside their own think so too, for it is hard to understand why this profession should, to the extent it is, be subjected to the hardships inseparable from a competition. That there are hardships scarcely needs pointing out. In the first place, the chances are greatly in favour of the man in large practice, because he either maintains a large staff or can afford to engage a special staff for a competition; he can use the combined skill of all this staff, merely supplementing it with his own, to turn out his design, while a man less favourably placed has to do practically the whole work, mental and mechanical, unaided. In such circumstances the balance of advantage clearly lies with the first, just as it would in a race where a machine of small horse-power is in competition with one of much greater capacity. The unfairness of it between man and man is thus inherent in every competition. Then as to the effect on the work produced there is this to consider. Conditions have to be laid down more or less rigidly which all competitors must observe. The designer may see a way of ignoring some of these, and by so doing vastly improving his design; but he dare not, nor dare his client, if consulted, agree to his doing so, because if he did he would be unfair to the other competitors. It will happen sometimes, however, that a bold step is taken, a condition or two is evaded, and a design is produced that, by its intrinsic merits, captures the client or assessors. They would probably refuse to sanction the change if asked beforehand; but if it is made without their being asked, and is perceived at the same time as the improvement effected comes before them, they are disarmed and are apt to condone it. But a step of this kind can be taken only by the experienced competitor. He has learned how much rope the average assessor may be expected to allow, and boldly goes the full length of it, while the less experienced man is too timid to take an inch of it. And here again the latter suffers from a certain degree of unfairness. It is usually said that a competition calls out a man's best efforts; but we think for more than one reason that this is a doubtful assumption. When a man is taken from work on which his daily bread depends to embark on what to him is a mere speculation, in which his chances of success are, in most cases, remote, is he likely to put his best into the speculative work? One with the spirit of the gambler might; but the man of sober and earnest mind is more likely to feel towards his competition work as one feels towards the lighter occupations of life, something to be taken up lightly when the real day's work is over, something in which no high hopes are centred, and, therefore, for which his highest efforts are not reserved. This, we take it, is the spirit in which competitions are entered upon by all except the sanguine few who have been endowed by Nature with energies sufficient to be devoted equally to the shadow and to the substance. When, again, a man is engaged upon a competition, he is, humanly speaking, bound to consider the idiosyncrasies of the assessor, or the principal one of the assessors when there are more than one. Assessors are men naturally well known in the architectural world; from their own works their tendencies can be judged, so the discerning competitor is extremely likely to put on one side some of his own originality if he can produce in its place work that is likely to please the individual by whom his work is to be judged; and so his work is not as free as it otherwise might have been. In a system under which a client comes to an architect, tells him in a general way what he requires, definitely makes over the work to him, and is accessible for consultation at every stage of the design, we cannot help thinking much better work can be produced. The completed design may differ materially from what the client had in his mind when he set out to engage his architect, but it is certain to be better. His essential requirements will have been met, and probably something more; it is even possible that economy has been secured by more skilful disposition.

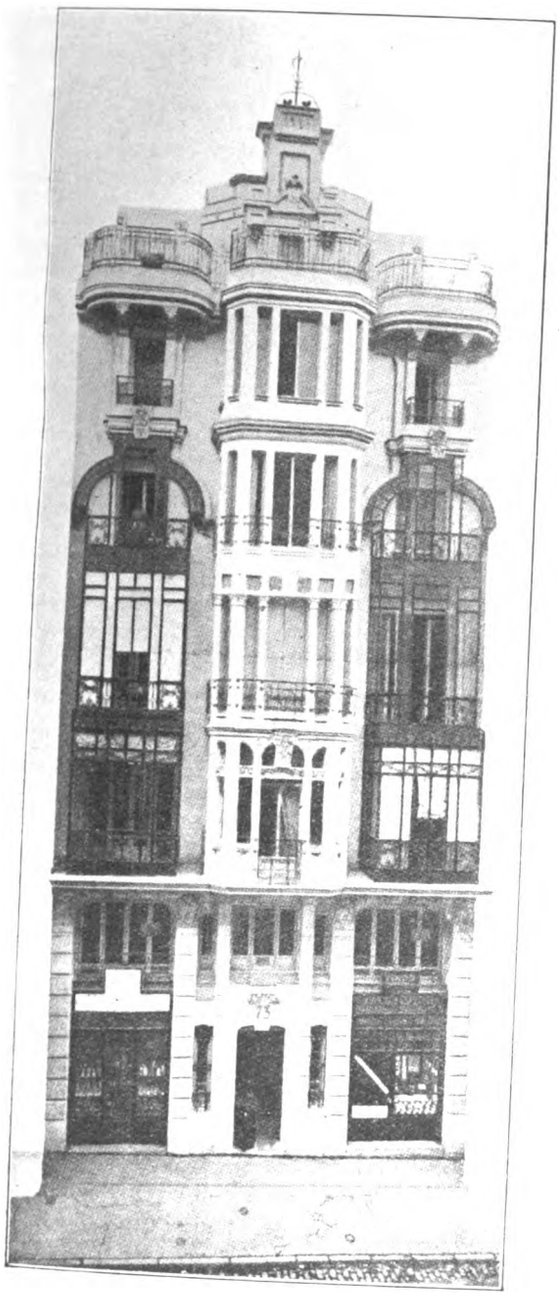
Looked at broadly, a competition is a great waste of skilful effort. It is true the prize, or prizes, given may be of higher value than is the professional value of the individual design, or designs, to which they go. They never, or seldom, represent the professional value of all the designs submitted, and thus the client has received more than fair value for what he has given. He has called forth a large amount of work for his own benefit for which he has paid nothing, and which is worthless for any other purposes, and has thus been the cause of much wasted labour. The difference between a competition and a lottery is, after all, but small; in the second the stakes are in money, in the first they are in labour. It is true that the one is a gamble whose success depends on skill; but there are elements which handicap the skill of some of the competitors, and there is an element of chance in the decision of those who select the prize-winners. If, then, there are any advantages in architectural competitions, they lie on the side of those who invite them; but we are speaking on the side of the competitors, and in their interests we feel that it would be well if competitions were abolished. Nothing of the kind prevails in any other profession, except in a very limited way in engineering, and the architectural profession would gain in dignity if it proscribed them.

WAR ITEMS.

THE Germans scarcely realise the depth of feeling in this country and amongst our Allies, which though not effervescent is real, if the optimistic views given in the *Berliner Tageblatt* are really held. We are told that the chairman of the Administrative Board of the Berlin Chamber of Commerce says: "Our commercial relations with the outside world after the war will largely depend upon the terms of peace. But it is not necessary to take a pessimistic view. The resumption of trade relations will prove to be easier than is to-day generally imagined, even with our present enemies, for they will not be able to dispense with Germany as a market for their productions. The first and most essential condition for the restoration of trade confidence is that the peace shall be of a stable character."

A leading member of the Berlin Chamber of Handicraft is of opinion that "the resumption of full manufacturing activity will follow only step by step, but by degrees we shall get back to the old courses. We may take it that there will be no serious lack of remunerative

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[From *Arquitectura y Construccion.*
DESIGN FOR STREET FRONT IN MADRID.
Don JESUS CARBASCO, Architect.

employment. In so many branches of manufacture consumers have been holding back that they will be compelled to make good their restrictions. The war will have made many rents in the ranks of skilled labour, but these will speedily be closed. Whether it will be possible to keep wages at the high level to which, in many branches, they have been forced during the war, is a question which it is impossible now to answer."

A gentleman prominently identified with the organisation of many of Germany's successful trade exhibitions writes: "After the war it will have to be our aim to recapture lost trade territory. Therefore exhibitions will be a prime necessity, and we may look to see increased activity in this sphere. But they will have to be more strictly trade exhibitions divested of the 'amusement' element. One of the first which we may expect to see in Berlin will be a motor show, bringing home to the public the manifold developments of automobile science which are the outcome of the experiences of the war."

Director Hatzky, of the Berger Tiefbau (underground construction) Gesellschaft, writes: "After the war we must endeavour to resist the tendency to slackening, which for a period will be likely to ensue. This is to be feared, not in the spirit of public enterprise, but rather in the ranks of labour. And it is quite intelligible if, after the enormous exertions of the campaign, the desire for rest should be apparent in wide circles of the people. Whether the high rates of wages, at present being paid for navvy labour, will be maintained, is doubtful. But it is practically certain they will never recede to pre-war rates. We are already successfully employing Polish labour to replace the Italians."

An eminent Berlin architect says that "in building trade circles the labour question gives cause for serious thought for the future. It is hoped that the masters will stand firm in refusing to employ Italian labourers, if these seek to return after the war. At present the leading builders in Berlin have sufficient work on hand to occupy them fully for a long time to come, but it is not expected that immediately after the war there will be any marked increase in building activity, and least of all in dwelling-houses. First, there is no lack of these; rather the contrary, and next, the whole system of mortgage and the rates of interest will need drastic revision, before any extensive erection of dwelling-houses ensues."

The following letter from Sir Herbert Raphael may interest the few amongst our readers who, though eligible, have not yet joined the King's Forces:—

Sir,—As you are doubtless aware, the War Office has entrusted me with the raising of a battalion of picked men for service abroad. This new unit is attached, by special permission of His Majesty the King, to one of the oldest and most celebrated of our British regiments, the King's Royal Rifle Corps. May I, therefore, through the medium of your paper, call attention to a few facts connected with this special recruiting effort?

The full title of the new unit is the 18th (Service) Battalion, King's Royal Rifle Corps (Arts and Crafts) (generally known as the 60th Rifles). This regiment is one of the oldest regiments in the British Army, having been formed in 1755. It possesses no less than 40 more battle honours than any other regiment.

The words "Arts and Crafts" are descriptive of the class of men from which recruits are taken. All clean intelligent men, who can bring brain as well as muscle to the services of their country, as, for example, men engaged in or connected with commerce or trade, particularly our oldest and largest industry—agriculture—are welcomed. Those enlisting will, therefore, be assured of congenial companionship.

Comrades are not divided. They lodge together, feed together, train together, and when called upon will fight together. The battalion thus offers to chums a fine opportunity of seeing this big business of the war through side by side.

Recruits on enlisting will at once proceed to the camp at Gidea Hall, Essex, where they will, without any delay, receive their uniforms, and commence their training.

All fit men from 19 to 40 are eligible to enlist, and as the battalion has only just commenced to train, the raw recruit will not be handicapped by the greater and more advanced knowledge of mates.

Cricket, football, and athletics generally are encouraged, and form a not unimportant part in training.

Recruits are soldiers of the Regular Army, and receive the same pay, and their wives and dependents receive the same allowances as other soldiers of the King.

I shall be pleased to send to any inquirers a booklet giving full details, together with an application-for-enlistment form. Of course, inquiry commits to nothing.
—Yours, &c.,
HERBERT RAPHAEL.

Chief Recruiting Office, 5 Cavendish Square, Oxford Street, London, W.: June 24, 1915.

In the House of Commons Sir Edwin Cornwall asked the Under-Secretary for War whether any arrangements, and if so of what nature, had been made between the British and German Governments for the protection of specified buildings?

Mr Tennant: Article 27 of the annex to The Hague

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Convention lays down that in sieges and bombardments all necessary steps must be taken to spare, as far as possible, buildings dedicated to public worship, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded are collected, provided that they are not being used at the time for military purposes, and states that it is the duty of the besieged to indicate such buildings or places by distinctive and visible signs, which shall be notified to the enemy beforehand. In accordance with this article His Majesty's Government notified their intention to use for this purpose a sign consisting of a large, stiff, rectangular panel divided diagonally into two pointed triangular portions, the upper portion black and the lower portion white. No other arrangements have been made between the British and German Governments for the protection of such buildings. How far the enemy are likely to observe the provisions of this or any other convention I must leave to the judgment of the hon. member.

COMPETITION NEWS.

BRADFORD.—The premiated designs in the recent competition for the replanning of streets in the central area of Bradford will be exhibited in the galleries of the Royal Institute of British Architects for a fortnight, commencing on Monday, July 5, between the hours of 10 A.M. and 6 P.M. Admission will be free.

PLYMOUTH.—The Committee of the Plymouth Mutual Co-operative and Industrial Society, Ltd., invite architects practising in the United Kingdom to submit designs in competition for business premises to be erected in Frankfort Street, Plymouth, on a site containing about 24,000 square feet. Premiums of £75, £50, and £25 are offered for designs placed second, third, and fourth. Plan of site and instructions prepared by Mr. Paul Waterhouse, M.A., F.R.I.B.A., the assessor, can be had on application (accompanied by a deposit of 5s.) to the General Secretary, Plymouth Mutual Co-operative and Industrial Society, 15 to 18 Frankfort Street, Plymouth.

ILLUSTRATIONS.

COMPETITION DESIGNS FOR NEW MUNICIPAL BUILDINGS, STEPNEY.

OUR inset plates this week are devoted to the illustration of the designs placed first, second, and third in the competition for Stepney's Municipal Buildings, a critique of which forms our leading article.

SIR HENRY TANNER, C.B., I.S.O., F.R.I.B.A., Chairman of the Council of the Royal Sanitary Institute, will preside at the provincial sessional meeting of the Institute, to be held at Yeovil on July 14. The subjects for discussion are "Water supplies to rural and small urban areas," to be opened by Dr. W. G. Savage, Medical Officer of Health to the Somerset County Council, and "Prevention of minor infectious diseases," to be introduced by Dr. K. E. Remmett Weaver, Medical Officer of Health at Yeovil. The visitors will be received by the Mayor of Yeovil. Visits have been arranged for the afternoon.

THE Dean of York has edited an exhaustive account by the late John Browne on the representations and arms on the glass of the 500 windows of York Minster, and the book will be published in the autumn by Mr. Richard Jackson, Leeds. Mr. Browne spent nearly the whole of his leisure hours in studying and sketching the Minster, of which he wrote a monumental history. Immediately after its publication in 1847 he commenced to get together materials for a full description of the stained glass. The work was just completed before his death, and the MS., with sketches, came into the possession of the Dean and Chapter, who gave it a place in the Minster Library. It is this material that has been edited by the Dean, who has written a biography of the author. The book will comprise about 300 pages of text fully describing the subjects and armorial bearings in the windows, together with notices of the families. There will be 40 pages of illustrations, in which upwards of 500 figures will be delineated, all printed in heraldic colours from Mr. Browne's original drawings.

DARTFORD AND STONE.*

By F. H. HARPER.

DARTFORD.

THE town of Dartford in Kent is situated in the valley of the Darenth, or Dart, at the point where the Roman Watling Street crossed the river by means of a ford. Its name is given in Anglo-Saxon times as *Darentford*, and in the Domesday Survey as *Tarenteford*, and is derived from the Celtic root *Dwr*, meaning water. The town, now an industrial centre, chiefly connected with the manufacture of paper and gunpowder, is nevertheless one with a history.

The manor was an ancient demesne of Saxon kings, and at the time of the Domesday Survey had "a church worth sixty shillings, and three chapels." In the thirteenth century it probably still retained some connection with Royalty, as in 1235 Isabella, sister of Henry III., was here married by proxy to the Emperor Frederic by the Archbishop of Cologne, who had been sent with an embassy to perform the ceremony. The marriage in person took place at Worms on July 20 in the same year. Edward III., on his return from France in 1331, held a tournament at Dartford.

Perhaps the most familiar incident in the history of Dartford is Wat Tyler's rising, otherwise known as the Peasant Revolt, in the reign of Richard II. The people strongly resented the infliction of the poll-tax, and their views were inflamed by the preaching of John Ball. The state of tension which existed was brought to a crisis on June 5, 1381. A collector of the hated tax brutally assaulted the daughter of a certain tiler of Dartford, whereupon the said tiler knocked out the tax-collector's brains. Whether Wat Tyler, the leader of the rebellion, was the Dartford worthy is uncertain, as he is also described as being a Maidstone or an Essex man. Be that as it may, the men of Kent and Essex rose and moved towards London, where Tyler was killed by the Lord Mayor.

Tyler's followers, who have been estimated at no less than 100,000, were put to flight, and many were killed during the fighting with the King's forces, or were executed.

In 1422 the dead body of Henry V., while on its way from the castle of Vincennes for burial at Westminster Abbey, was taken into Dartford Church, where the funeral Mass was solemnised by the Bishop of Exeter.

At Dartford Brent, to the east of the town, the Duke of York lay encamped with his Army in 1452, while Henry VI. was encamped at Blackheath.

Here, also, was the rendezvous of General Fairfax's Army in 1648. Queen Elizabeth resided "in her palace at Dartford" for two days during her progress in Kent in 1573.

In 1588 Sir John Spilman, "a High German," jeweller to Queen Elizabeth, built the first paper mill at Dartford. This mill was for the manufacture of writing paper, and has been claimed to be the first paper mill in England. Thorne, however, quotes a statement from a book printed by Wynkyn de Worde, in 1495, to the effect that the paper of the book was made by John Tate in England. Tate's mill was near Hertford. Spilman was evidently on good terms with Elizabeth, for she gave him his knighthood, a manor, formerly the property of the Priory, and also a licence for the sole gathering for ten years of all rags, &c., necessary for the making of writing paper. Spilman died in 1626 and his first wife in 1607, and they are commemorated by the elaborate monument in the church, which was removed to its present situation and restored by the Fraternity of Paper Makers. Spilman's descendants retained the mill until the middle of the seventeenth century. Later they fell upon evil times, and were constant recipients of parish relief. The mill was converted into a gunpowder mill in the eighteenth century.

Another mill was erected at Dartford in 1590 by Geoffrey Box, of Liege, for slitting iron bars into rods, &c., and is claimed as the first of its kind in England.

Dartford is also known to the ornithologist in connection with the Dartford warbler, *Sylvia undata*, a rare British bird first found here by Latham in 1773, and since found in various parts of the country. Unlike other warblers, it winters in England—a fact the more remarkable when it is known to be migratory in most parts of Europe. It is supposed that the severity of our climate kills so many that the stock is only maintained by migrants from the Continent.

* Read at a recent meeting of the Upper Norwood Athenæum.

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To turn to the ecclesiastical history of Dartford. As already stated, the Domesday Survey refers to a church and three little churches or chapels, and it is possible, although not certain, that the church may have stood on the site of the present parish church.

A Priory of twenty-four Augustinian nuns was founded on West Hill by Edward III. in remembrance of his victory at Crecy, and the possessions of the nuns were increased by Richard II. The former grants were confirmed and a new charter was issued by Edward IV., one of whose daughters was prioress and another a nun of the priory.

At the Dissolution Henry VIII. fitted up the buildings as a dwelling place for himself and his successors. The house was afterwards granted by Edward VI. to Anne of Cleves in exchange for lands in Surrey, but on the death of Anne it reverted to the Crown, and is doubtless the "palace" at which Elizabeth resided on the occasion of her visit already mentioned. It was given by James I., with other property, to Robert Cecil in exchange for Theobalds. The remains are now used as a farmhouse.

The chantry of St. Edmund the Martyr stood on East Hill overlooking the parish church and churchyard. The building has entirely disappeared, but the surrounding ground still remains as a burial ground. This chantry was part of Edward III.'s endowment of the Priory, and became a famous place of visit for pilgrims on their way to Canterbury.

It was near this chantry Christopher Maid was burned for heresy in 1555.





BRASS, CIRC. 1454, IN DARTFORD CHURCH.

Yet another chantry, dedicated to the Blessed Virgin, but usually known as the Stampett chantry, was within the parish church. It was founded in 1338 by a former vicar, Thomas de Dartford, alias A. H. Stampett. It was well endowed, and paid the vicar xiid. annually. When suppressed in 1553 its incumbent, Robert Bacon, was granted a pension of £6 a year. St. Edmund's chantry was under the jurisdiction of the Archdeacon, but the Vicar of Dartford and the Stampett chantry were not.

Close to the ferry a hermitage, with a small chapel dedicated to St. Katherine, was founded in 1235. The last hermit recorded was in 1518.

HOLY TRINITY CHURCH, DARTFORD.

With the exception of the tower, no part of the present church dates back to the Norman period.

The tower, which stands at the east end of the north aisle, an unusual position, is much older than the rest of the church, and Mr. Spurrell is of opinion that the foundations date from Roman times. The lower part of the visible structure is generally believed to be the work of Gundulf,



RICHARD MARTIN AND WIFE (1402), DARTFORD CHURCH.

the architect-bishop of Rochester, 1077-1108, to whom is attributed the rebuilding of part of his cathedral and the building of the White Tower in London, St. Leonard's Tower at West Malling, a tower at Rochester, and Dartford Church tower.

It is thought by some that the tower was originally a fortress for the protection of the ford or ferry over the river Darenth, and of the Roman road.

The exterior of the church is mainly of flint, and evidently has been subjected to much restoration. The south-west corner was shorn off in 1792 to admit of the High Street being widened. Close by is a blocked door, part of the pointed arch remaining. The present south door is further to the east and opens into the south chapel.

The west door is curvilinear, with good mouldings and shafts with foliated capitals.

Entering the church, we find a wide and lofty nave separated from the aisles by three pointed arches with octagonal piers. The west window is large with Late Decorated tracery, and contains some modern stained glass.

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The font is modern—Glynne describes an octagonal font, each face rudely sculptured with two Early English arches, standing on an octagonal pedestal. This has gone, but it may be the one portions of which are now in a lumber shed in the churchyard, beneath a quantity of rubbish.

At the west end of the north wall is a small window, discovered during a recent restoration. This is thought to be the window of an anchorite's cell, the walls of which have disappeared.

In the south aisle we see the blocked doorway referred to in the description of the exterior.

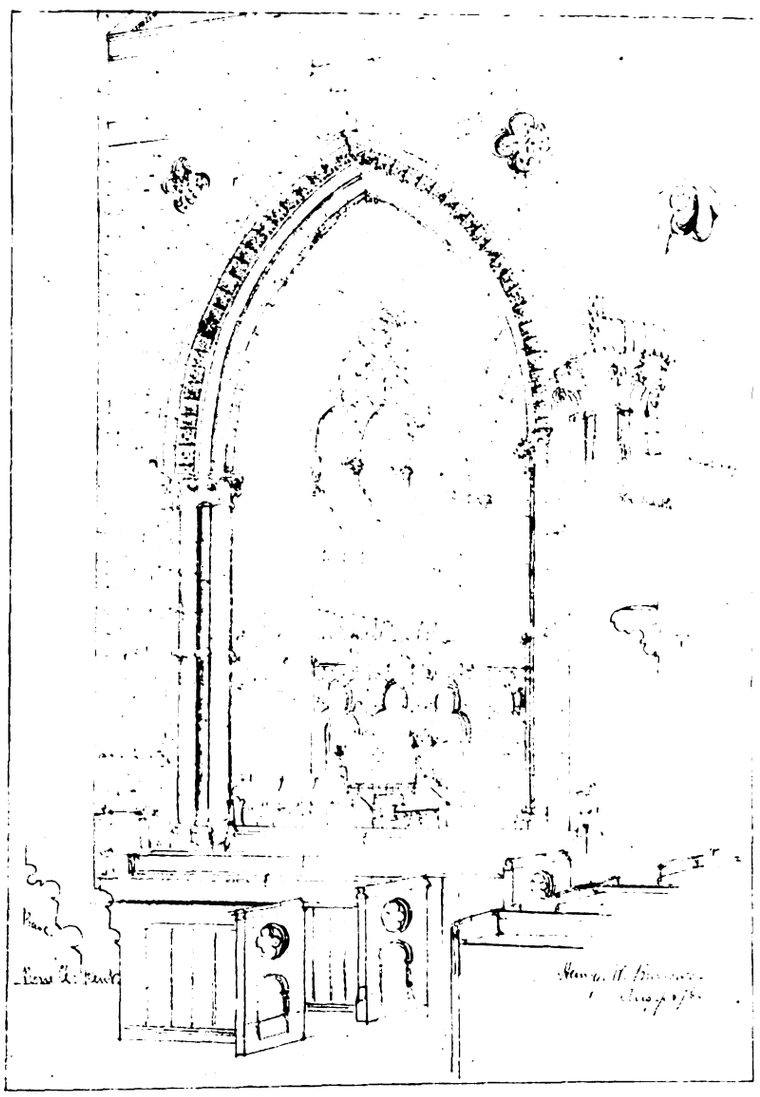
The chancel was restored in 1886. The arch was raised, and in the process the entrance and stairs to the rood loft were discovered. The chancel is separated from the north and south chapels by pointed arches. At the easternmost end of the south wall is a blocked window opening, doubtless closed at the time of the erection of the Stampett chantry

enabling the rude Norman work to be seen. Here has been placed a Roman stone coffin, weighing about 2 tons. It was discovered on the East Hill in the early part of the last century, and after remaining in an open garden for nearly seventy years was removed to the church at the instance of the Kent Archæological Society.

The south chapel is the Lady chapel or Stampett chantry, which, as already mentioned, was formerly an establishment independent of the church. It contains a rare feature, an interior sundial, placed on the sill of the south-east window, bearing the date 1820.

The fresco on the east wall of the chapel, representing St. George destroying the Dragon, was discovered on the removal of some whitewash about eighty years ago. It measures 19 feet by 12 feet, and is thought to be fifteenth-century work.

Beneath the picture is the niche in which stood the image



STONE CHURCH, KENT. From a Sketch by Mr. HENRY W. BURROWS, A.R.I.B.A., F.G.S.

priest's chamber, but the blocking has been pierced by a small opening, probably to enable the priest to view the high altar from his chamber. A piscina and an aumbry flank the altar on the south and north sides respectively.

On the woodwork of the ceiling over the sacrarium are a number of coloured ornaments, all that now remains of the "fine wood ceiling, carved and panelled and enriched with painting and gilt stars," described by Glynne.

The east window is modern, nineteenth century. A window of five lights was erected in 1333; 450 years later it was replaced by another which, in turn, gave place to the present window.

The north chapel, Thomas à Becket's chapel, built early in the thirteenth century, and now used as a vestry, contains two lancet windows, and a rectilinear window at the east end.

West of this chapel is the lower stage of the tower,

of the Virgin over the chapel altar. The niche was discovered in 1891.

The chantry formerly contained a quantity of chain armour and a number of helmets, accoutrements, &c. In 1814 the churchwardens sold the collection to a Jew for twelve guineas. The Jew immediately disposed of the chain armour alone for the sum of £200. It would be interesting to know whether a change of churchwardens occurred at the ensuing Vestry meeting.

East of the chapel are the rooms which served as the lodging of the Stampett chantry priest.

The organ formerly stood in a gallery at the west end of the church. It was afterwards removed to the Stampett chapel, and has now been erected in the north aisle.

The memorials of Dartford Church are numerous and interesting.

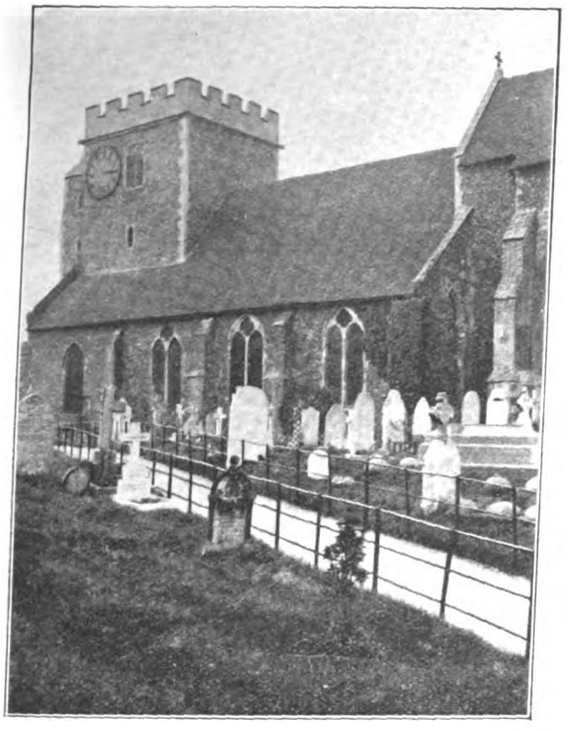
On the north side of the chancel is the monument to Sir

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John Spilman and his wife. It is of alabaster, and a good example of the simpler Jacobean style. It bears an inscription, partly in Latin, partly in English, and partly in German.

The brasses formerly on the chancel floor have all been moved during the various restorations.

The earliest is that of Richard Martyn and his wife, who died in 1400 and 1402 respectively. Martyn is in civic robes. The brass is now loose in the vestry. The figures are surmounted by a double ogee canopy. Mr. Macklin calls this brass "a typical and fine example of civilian brasses of the reign of Henry IV."



STONE CHURCH, KENT.

Martyn's son, Judge John Martyn, provided an endowment for a priest to celebrate Mass in Dartford Church daily. This priest was styled Martyn's Salary Priest. Next in order of date is the small brass of John Hornley, B.D., Vicar 1441-77. Hornley was President of Magdalen College, Oxford, and, if the inscription is to be relied upon, was not only a Bachelor of Divinity, but also Master of all the Arts, and of surpassing morals, intellect, and charity.

Another fifteenth-century brass is that near the lectern of Richard Burlton and his wife, 1496, with an inscription asking the reader to pray for their souls.

Other brasses, near the lectern, are those of Lady Agnes Molyngton, widow, daughter of John Appleton, who died 1454, and an unnamed brass of a male figure in fifteenth-century costume.

On the south wall of the chancel arch is the brass of William Death, 1590, "once prinsipall of Staple Inn," and his wives Elizabeth and Anne, the former having a child in her arms, showing that she died in giving birth to him. Death had ten sons and six daughters.

There are also some modern brasses and a bronze tablet to the memory of Richard Trevethick, a pioneer of locomotive engineering, who ended his days in poverty, died in 1833 at the Bull Inn, and was buried in Dartford Churchyard.

There are also memorials for the Beers and Twistletons, and, as Dugdale quaintly puts it, "for other respectable families."

The registers date back to 1561 and the plate to 1607.

STONE.

The history of Stone is meagre. From an early date, said to be 995, the manor was held by the Bishops of Rochester. The Bishops had a house here forming a halfway stopping-place between Rochester and London. The manor is now held by the Ecclesiastical Commissioners. This ecclesiastical ownership may perhaps account for the scanty information obtainable, the place being merely an appendage of the see.

In the parish was Stone Castle, of which Dugdale writes as follows:—

"Stone Castle is an ancient castellated building with a small square tower at the east end, which is the only part that has any appearance of a fortress. It is one of the 115 which were not dismantled, according to agreement between King Stephen and Henry II."

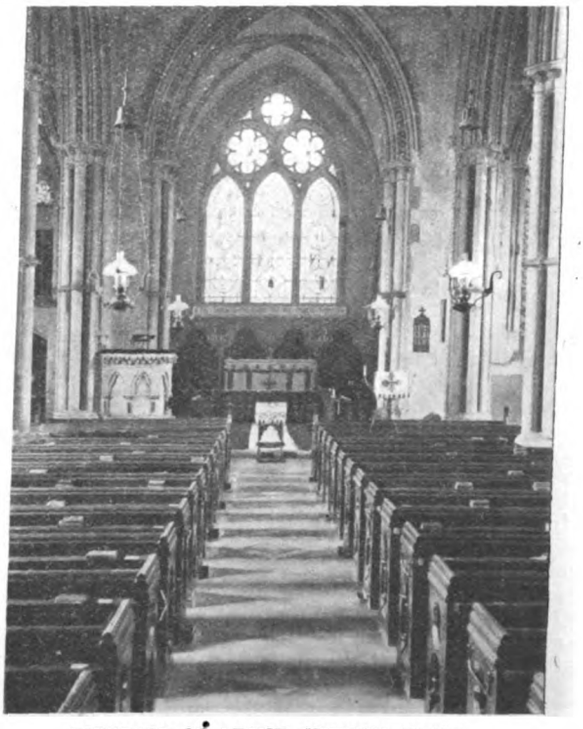
It was formerly a manor, and in the time of Edward III. Sir John de Northwood answered for the Manor of Stone Castle as half a Knight's fee. It was doubtless held by him from the Bishops of Rochester, as it had previously been held by Henry de Northwood. It afterwards passed to the Bonevant, Chambley, Chapman, and other families, then to Dr. Thomas Plume, Archdeacon of Rochester, and founder of the Plumian Professorship at Cambridge, who bequeathed the estate to charitable purposes. One of the provisions of Plume's will was that the rent of certain of the castle lands was to be devoted to defraying the expense of twenty-six sermons annually, to be preached during the summer, at Dartford and Gravesend alternatively. It would appear from this that he regarded the neighbouring towns as more in need of such spiritual guidance than his own village.

More than two centuries ago the castle was described thus:—

"Although it now lies wrapped up in its own ruins, yet the shell or skeleton of it, within which Sir Richard Wiltshire laid the foundation of that fabric now extant, represents to the eye some symptoms of its former magnificence."

Of these remains only a small tower now exists.

There is nothing of general interest in the history of the castle or in its descent. As compared with the scanty writings about Stone, we find a wealth of description regarding St. Mary's Church. The edifice is in the main Late Early English (1251-74), and has suffered the usual vicissitudes, including damage by lightning and fire in 1638. Before this visitation the Rector, Richard Chase, appears to have been on bad terms with his parishioners, who complained that he only came to the place once or twice a year, and then only to collect his tithes and pick quarrels. When the fire occurred Mr. Chase dismissed his curate and left the parish without a minister. The result was this petition to Parliament.



INTERIOR OF STONE CHURCH, KENT.

"And now, since our church hath byn burnt wee have had neyther prayers nor any other function ner these two yers: and he would have dismist his curat assone as the church was burnt, which had bynn one to us, wee having no use for him; but nowe, of late, we have none resident in our parish to bury our deed. Soe that as Mr. Chase leves our soules cure to the neighbouring ministers, soe our body to lye as noysom carrion, unless the dead will bury ther dead."

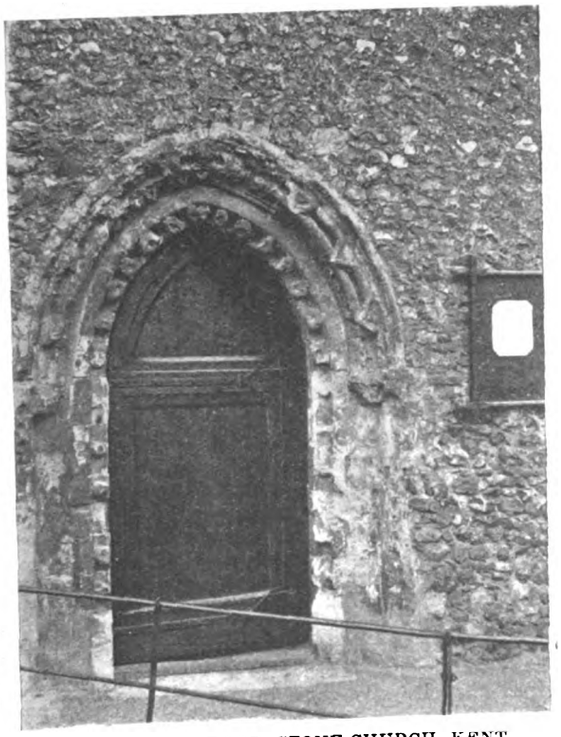
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Ten years after this petition the living was sequestered. There is no record as to the state of affairs in the meantime.

The building was admirably restored throughout by G. E. Street in 1860, and his renewals are said to be carefully copied from the original work.

Mr. Street's description of the church is as follows:—

"The chancel, nave, aisles, and western tower are Early



NORTH-WEST DOOR, STONE CHURCH, KENT.

English, and were probably built during the episcopate of Laurence de St. Martin (Bishop of Rochester 1251-74). In the fourteenth century the vestry north of the chancel was added, and the windows at the west end of the nave and aisles were inserted. The tower piers were also altered at this time. In the sixteenth century the Wiltshire chantry, forming the north chancel-aisle, was added."

The exterior of Stone Church is plain, partly of stone, but mainly of flint with patches of brickwork. The plan consists of nave and aisles, chancel with chapel and vestry to the north, and a heavy low western tower with buttresses.

On the north side of the chancel are some flying buttresses, an embattled parapet, and a large Perpendicular window. The vestry lies low, beneath the window sill.

The small north door, near the west end, has a pointed arch with chevron moulding, which Mr. Street thinks is an imitation of earlier work rather than evidence of the door itself being earlier than the rest of the church.

Glynne states that the outer moulding is a kind of chain, that the inner has round flowers much injured, and that the shafts have foliated capitals.

Unfortunately the details of this door have suffered further considerable mutilation since Mr. Glynne's visit.

The western tower, which engages with the aisles, is built of flints with a stone battlement. A large square turret projects at the south-west angle, and terminates in a gable. There is a three-light Decorated window in the west face of the tower, the belfry windows are square headed, and there are six small openings in the turret.

On entering the church one finds that the exterior has given but slight indication of the delicate beauty of the interior. We find a nave of three bays. The arcade is Early English, the graceful clustered and banded columns, each of four stone shafts with intervening smaller shafts of black marble, with foliated capitals, carrying well-proportioned arches with deep mouldings. The easternmost arch on each side is decorated with dog-tooth moulding. Around the chancel arch is a band of foliage, the spandrels being ornamented with foliated quatrefoils.

The tower opens into the nave and aisles by three lofty pointed arches, borne on clustered shafts with foliated capitals, and is supported by half-arches from the aisle walls.

The aisle windows, three on each side, are of two lights with quatrefoils of Decorated design, and are dated at about the end of the reign of Henry III.

The easternmost window on each side has the tracery repeated in open stone on the inner side, similar, one writer states, to some in the clerestory of Lincoln choir. The detached shafts have foliated capitals, and the mouldings are carried on corbels carved into heads.

The other windows are without the interior tracery, but two have good mouldings and ornamented capitals to the shafts.

The eastern window of the north aisle is of four lights, partly closed by the vestry. The corresponding window on the south has two lights. Both have marble shafts and carved capitals.

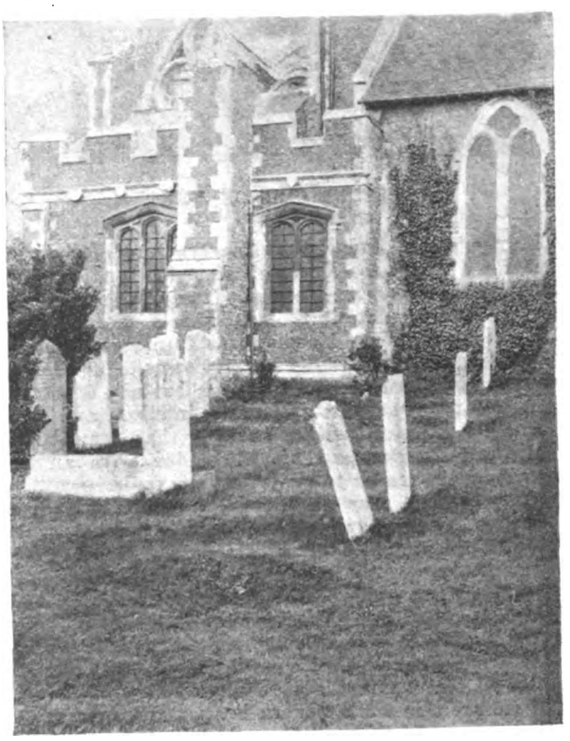
In the chancel the most noticeable feature is the arcading around the walls. The shafts are Sussex marble with moulded capitals, the spandrels are filled with rich foliage, the cusps are ornamented with foliated bosses, the whole being surmounted by a string course. The work is described in the Encyclopædia Britannica as among the finest of its period extant. Mr. Street states that this arcade is almost identical in design, material, and workmanship with that around the choir at Westminster, and in his opinion both are the work of the same architect.

On the south wall, within the eastern recess of this arcade, is a small pointed niche, doubtless a piscina.

The east window contains three wide lights, similar windows being on the north and south sides of the chancel.

The chancel is vaulted, the groins being supported on slender marble shafts. The foliage of the capitals of the western clusters is very rich, more Decorated than Early English in style.

To the north of the chancel is the Wilshyre chantry, erected in the sixteenth century. During his restoration Mr. Street discovered a window concealed in the wall con-



NORTH SIDE, STONE CHURCH, KENT.

taining three uncusped lights, the tracery being formed by three cusped circles. It was this window which he took as a model when restoring the chancel windows.

The Purbeck marble altar tomb in this chantry has lost its brass and is without inscription, but is believed to be that of Sir John Wilshyre, controller of the town and marches of Calais under Henry VIII. It is under a flat-arched Perpendicular canopy.

The monumental brasses date back to the beginning of the fifteenth century. South of the altar is the brass of John Lumbarde, rector 1408, a small figure in the head of an octofoil cross. Outside the altar rail is a brass to Robert Chapman, 1574, with a doggerel inscription and bearing the arms of the Merchant Adventurers, and of the Drapers' Company, of which latter he was a freeman.

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In these notes on Dartford and Stone may be recognised numerous quotations from the published descriptions by writers whose opinions carry weight, and I have not ventured to attempt anything more than a compilation, brought up to date.



CHANCEL ARCADING, SOUTH SIDE, STONE CHURCH, KENT.

For the accompanying illustrations I am indebted to Mr. F. Weise, Mr. Henry W. Burrows, A.R.I.B.A., and Mr. Shaw, Deputy Town Clerk of Dartford.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

THE architect to the Derbyshire Education Committee, Mr. G. H. Widdows, F.R.I.B.A., invited the members on Thursday, June 24, to view the secondary schools at Ilkeston.

The party numbered about thirty, and included two Belgian architects at present in England.

Mr. Widdows conducted the party over the building, pointing out the special points in the planning in order to obtain through ventilation without draughts, and efficient lighting in every part of the classrooms.

The plan and general arrangement of these schools is well known, and a visitor cannot but be impressed with the cheerful and orderly appearance of the whole of the buildings.

Even the classrooms have their own individuality in the finish of the decoration on the walls, and the fittings throughout have been selected with a view to use and convenience.

The headmaster's room is in telephonic communication with all the classrooms.

The central hall in the quadrangle is well designed, and constitutes an attractive centre-piece.

It is certainly an up-to-date school, even hot and cold water being laid on to the numerous lavatory basins, and by an arrangement of the heating pipes in the cloak-room every child's clothing and shoes are dried and warmed ready for use.

Mr. Widdows concluded his interesting description by the practical demonstration with a smoke test of the perfect ventilation of one of the rooms.

The President of the Society, Mr. Harry Gill, thanked Mr. Widdows for inviting them over and so willingly describing what they had seen and also for kindly inviting them to take tea with him. Mr. Watkins (Vice-President) endorsed this, and in his reply Mr. Widdows invited the Society to visit some of his later schools, which possessed unusual features.

Several of the members afterwards visited the parish church, where, in the absence of Mr. Widdows, Mr. Harry Gill explained the interesting architectural features.

THE RECONSTRUCTION OF ROADS IN BELGIUM.*

By HENRI VANDERVIN, Ingénieur en chef Directeur des Ponts et Chaussées de Belgique.

THE Committee of the County Councils Association have done me the great honour to invite me to express to their Road Conference my views on the reconstruction of roads in Belgium.

It is with the greatest pleasure that I respond to this request, by setting down, from an entirely personal point of view, a few general reflections on the subject, and I shall be glad indeed if I can in this way contribute to some extent to the relief of my unhappy country and assist her to a new life which will requite her undeserved sufferings borne with that heroism which the outrages on her rights and liberties have inspired.

My report has no other object than this. It is not intended to enlarge upon the value of our roads, and it will be silent on their qualities. What I have in view is the improvement which can be made in them and the bringing of them to perfection, and it is only by the criticism of certain of their characteristics that ideas and suggestions can be elicited which will be useful for this purpose.

It is necessary to define in this way the character and the intention of these few lines, as they may otherwise seem to be tinged with a severity of criticism which is by no means in the mind of the author, although this severity will not be balanced by any description of the advantages which are to be gained from our system of roads.

This system is very extensive—perhaps the most extensive in the world in proportion to the area. It covers more than 10,000 kilometres (6,214 miles) of principal roads (*routes de grande communication*), in addition to a considerable length of "vicinal" roads—that is to say, roads which have not the character of large thoroughfares traversing the whole country or an important part of it. These vicinal roads are established and maintained by the communes with the financial assistance of the Government (State and Provinces) whose subsidies grow constantly more considerable,† thus affording eloquent testimony to the part taken by the higher authorities in the improvement of this system. I shall only deal here with the great thoroughfares (*chemins de grande communication*) corresponding to the main roads of the United Kingdom. Their length attained 3,241 kilometres in 1830 on the establishment of the Monarchy. In 1911 it amount to 9,787 kilometres. The improvement has, therefore, been one of considerable extent, and its development for a small country whose territory covers an area of 2,945,104 hectares (7,277,352 acres) is remarkable, as will be generally agreed. The main roads are divided into two classes, the most important extending to 8,192 kilometres, but the condition of this large net-work of roads in an important part of the country left a great deal to be desired.

The great development of railways had led to a serious neglect of the system of main roads, which no longer served as in former days as the chief means of communication between important centres. The concentration of the national life in the great cities had still more accentuated this state of things, but new and recent factors have considerably modified it. It was at first the humble bicycle, which a Belgian statesman once described as the poor man's horse—the bicycle, by which one could travel swiftly and without fatigue, cover great distances, travel about the country without expense on business or pleasure, and reside at an appreciable distance from the scene of one's daily work. But these convenient facilities offered by the little machine were handicapped by the condition of many of the roads, whose paved surfaces were scarcely adequate for the traffic of slow and heavy wagons. The cyclist wanted nothing more than a narrow track, but the effort needed to give him this was enormous.

And as this track stretched out further and further along the roads, the use of the bicycle at the same time increased to a surprising extent. Under its influence

* A Paper presented at the National Road Conference, held in the Royal Horticultural Hall, Westminster, under the auspices of the County Councils Association.

† In the period 1841 to 1850 the state subsidies amounted to 3,806,633 francs, those of the provinces to 2,564,894 francs. In the period from 1891 to 1900 they were raised respectively to 27,161,514 francs and 15,990,627 francs. I am unable to give the figures for the decade 1901 to 1910. For the year 1910 alone the state estimates for the vicinal roads were 6,861,439 francs and the provincial estimates 3,561,823 francs.

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customs changed, the taste for touring, residence at a distance from one's work, business dealt with by making use of the ordinary road—all this became very much more generally recognised and, at the same time, the demands on the roads increased. Those roads, abandoned, to a large extent almost unknown, began to be discovered and to be made use of. All the advantages which might be taken of them began to be understood, the bad were compared with the good; the public began to realise what could be attained and demanded it.

And all this, one might say, was but a preparation for a movement far more important and intense, which was soon to be brought about by the appearance on the scene of the automobile, which had come to bring back to our roads their life of former days, or rather, which has come to give them a new life which they have never known before. Those beautiful roads which had been slumbering in the shade of their great trees for three-quarters of a century, during which the post chaises had not enlivened them with the trot of their horses, the tinkling of their bells, and the crack of the postillion's whip, were suddenly shaken out of their torpor. They were to come to life again, they were to be indeed the paths of conquest of the country by its inhabitants, but they had to adapt themselves to the requirements of the new vehicle.

The abolition of the noisy old paved surface, wherever it existed, was demanded, and the substitution for it of metalling. But soon it appeared that there had been too great haste about this conversion. The good metalled roads of the country were to be found as a rule precisely in those regions where there was the least industrial traffic,* where the slopes and gradients are accentuated. The conversion led to serious inconveniences in the level country, where the heavy and intensive traffic soon made serious ruts in the narrow metalling. At the same time, the dust and mud, enemies from opposite aspects, became terrible.

It was thereupon realised that there had been too great a generalisation, that the choice ought to be dictated by the different circumstances of each case, that the paved surfaces had been too hastily condemned, since they were excellent in certain regions and on certain roads—though it must be admitted that their construction usually left a great deal to be desired, both from the point of view of the quality of the materials, and from that of execution and maintenance—that the same might be said of metalling, and that the struggle against dust could be carried on with success if one were ready to pay the price.

This has been a valuable experience and should not be forgotten. Many of our roads still leave much to be desired in spite of the enormous expenses which have been incurred since the revival of road traffic; many will have been seriously damaged by military traffic and strategic operations. It will be necessary to reconstruct them to a considerable extent, in order to insure to Belgium that fresh start which her activity must undertake on emerging from her present sufferings. It will be necessary to avoid the infatuation for a uniform system, to adapt to each case the kind and type most suitable; but everywhere the work must be carried out with the proper materials and care of execution in order to obtain surfaces which are smooth and all of an average width of six metres, which will allow the passing of vehicles and prevent the traffic from following a single track. It will be necessary to adopt a moderate camber, to abolish it altogether at curves and to replace it by a transversal inclination, to widen the metalling at these points, to rectify the alignment, to provide good foundations, and to make the surface such that the formation of a quantity of dust will be prevented.

The expense will be enormous, but it will be remunerative in view of the development of traffic upon the roads which has already taken place, and which there is no doubt will in the future show a still greater increase.

But it is not only the reconstruction of the metalled roads in certain points to which our attention should be directed. The pedestrian does not, as a rule, enjoy the facility and comfort on our country roads to which he has a right. The flood of traffic which must go on over our roads should be able to flow with ease in all its diverse forms.

* In 1911, in the industrial provinces of Liege and Hainault the average annual kilometre-tonnage of loads was respectively 40,545 and 44,265 tons, while in Limbourg it was only 14,460 tons. I have not at hand the figures for the provinces of Namur and Luxembourg.

Those who in these terrible times have been sojourning in this hospitable country of England will carry away with them a vivid impression of the advantages and charm of domestic life outside those large centres where the business of the day is carried on. Many will go back with the desire and intention of establishing their homes also outside the towns. But in order that life in the country may be carried on with all the comfort which is assured to it in the United Kingdom, it is particularly important that a country road should be as convenient to traverse as the streets of a town.

In England the pedestrian has usually by the side of the road his own path, which is inviolable. On most of the main roads he finds a sidewalk which is reserved for him, upon which he can stroll in peace without fear of motor-car, motor-cycle, or bicycle, and this sidewalk is often covered very economically with a layer of gravel; sometimes, at the edge of the road, with a light tarmacadam, sometimes even without any kerb. Thus the sidewalk easily gets rid of the water, is firm under foot, clean, easily maintained, and convenient for walking.

In Belgium, we may as well admit it, the sidewalk, when it exists, has usually been constructed for the benefit of cyclists, and sometimes the motor-cycle itself has been admitted on it. The pedestrian, if he ventures upon it, is the prey of a perpetual fear of destruction, and at every moment has to step out of the way to allow a machine to pass him.

Why should not that which is carried out in England be possible with us? We possess country roads which are, as a rule, wider than those in England. From this splendid width we do not derive all the advantage that we might by regulating the traffic of vehicles and pedestrians. The road-sides outside the metalling are almost unused, or at least used only for a cycle track.* It should be simple to find in them all that is necessary for the purpose of excellent side-walks. In cases where the width of the road is not great, the system often adopted in England, which consists in covering the road with metalling over its whole width, with the exception of a side-walk on one side only, seems to me to present great advantages. The bicycle must, of course, run on the metalling, which has a surface so smooth that the cyclists have no ground for complaint.

Undoubtedly the drainage of water requires precautions and certain engineering provisions, but when these have been well though simply established this can be thoroughly ensured, and on such lines that the watering of the metalling, which is so essential to its good preservation, can be in this way even better effected than when this metalling is bordered only by earth side-walks which retard the water and through which it filters. Experiencia magistra! The ruling formula of the engineer here again exemplifies its truth by the example of the good roads in England.

On the other hand, our roads possess one notable point of superiority in that beautiful adornment which is afforded by the rows of trees which cover, as with an arch, a portion of the roadway, giving welcome shade in the heat of summer, while in the rainy season they lose their leaves and allow the air to sweep freely over the road. And what an adornment it is, giving as one travels over some beautiful road the impression of passing along a broad avenue of some great private domain. Let us carefully, jealously, preserve our plantations of trees.

At the same time, it is a question whether the position of the trees on the ridges of the road-sides is always the best. To the frontager who complains, the natural reply is that he must be expected to put up with a certain amount of nuisance in view of the many advantages which the road brings him. If, however, the nuisance can be avoided, why should one not avoid it? And when a building is erected on the frontager's land and suffers from damp owing to the trees, it becomes necessary to sacrifice the tree, an element of general well-being, to prevent undue injury to an individual interest. On the main roads where they traverse urban areas, even in the villages, it becomes the rule to do away with trees and the exception to preserve them.

The position of the tree on the edge of the road when the latter is broad is due to the primary idea which leaves to the traffic of vehicles the entire breadth of the road whether metalled or unmetalled, and, if the sides can be done away with, or at any rate converted into side-walks,

* I do not speak of our light railways which are sometimes laid upon them. There seems to be a movement in favour of their construction on distinct tracks.

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the tree might be placed at a distance from the ridge. In this way it is often possible to carry out a very satisfactory alteration.

What, then, is the best course to adopt? Again, let us avoid any rigid rule, any general and absolute regulation. By this means the requirements both of the seeker after the beautiful and of the utilitarian may be satisfied. Let each case be examined and decided upon by taking note of the surrounding circumstances. The traffic is not the same everywhere, its intensity and its character vary. Soils are of many kinds, localities are different, the atmosphere varies and so also do the longitudinal and cross sections. On the same road the position of the trees should often be modified according to the situation. The danger that at certain points the position of the trees might form an obstacle to the motorist's view must also be taken into consideration. An absolute rule, therefore, would be irrational.

Moreover, the tree is a charming friend, but one whose friendship is not fully acquired until many years have passed. In England it is perhaps more fully appreciated than anywhere else; it is respected, it is protected, it is given its independence, it is not mutilated. The beauty of its natural form is more respected in that it is not lopped to an exaggerated height, nor is it allowed to be so absurdly shaped as to bear the appearance of a balloon perched on the top of a bare pole. Everywhere this policy finds a rich reward.

If we have beautiful trees, let us spare them as far as possible (in that indeed the Government is concerning itself) even if they happen to be in unfortunate situations. In such places let us plant the new ones with better judgment.

Considerations of the same kind should preserve us from too monotonous alignments, in accordance with which buildings stretch in uninterrupted lines from one end to another of the road. If we were to continue to pursue this course, our urban main roads would soon be quite insipid, dull, and vulgar. Farewell to the picturesqueness which is caused by variety and the unexpected, nowhere a projection which strikes one's eye in the monotonous vista. "Boredom was one day born of uniformity."

The Belgian Government has already required that along many of the new roads there shall be a definite space between the road and the building line. We must, it seems, proceed with determination upon this course in order to ensure to our roads, at any rate outside the large centres, air and light and the adornment of gardens at their sides. Comparatively narrow roads can in this way be transformed to some extent into broad thoroughfares. Those who have lived in England will carry away with them in this respect a very strong impression in the picture of modern thoroughfares, broad and pleasing in spite of the actual roadway being often of quite a moderate width.

What a lesson, too, do the English teach us in the matter of their fences, so often consisting of beautiful hedges, wide and thick, whose green defies even the sadness of the winter. This allows those on both sides of the hedge to profit by the air and light of the neighbouring garden, or of the road, as the case may be, whereas our gardens are shut in by walls, which form airtight partitions, preventing the air from ventilating the confined atmosphere, filling with sadness all the little cell-like courtyards, and forming a lifeless screen the whole length of the road.

Many of our highways will have suffered much; some are absolutely in ruins. In reconstructing them it is by some such considerations as these, I think, that we should be inspired. Out of evil must arise good. The destruction must be made the opportunity of a reconstruction in a modern spirit, with attention paid to life, comfort, and cheerfulness.

The ruin of many buildings is an opportunity which should be seized for a modification in this direction. In some instances it will no doubt be desirable to consider whether the operations should not be even more radical, whether, instead of a local improvement, it would not be better to effect a complete diversion of the road and to reconstruct it entirely in a modern spirit.

Those critical points in the Belgian road system formed by bridges, where the interests of the roadway and the waterway are in conflict will, undoubtedly, in many cases, need very special consideration. The destruction of these works will have been very general, the adjoining lands will often have suffered also, and their ruin will form an excuse for considering, for the approaches, solutions hitherto too costly, such as the establishment of a fixed bridge at such a level as would render the water and road traffic independent of one another. On the same grounds it will be proper to consider whether in the case of a previously existing site which was unsatisfactory, it would not be well to substitute a better.

In certain thoroughfares the carriage-way leaves much to be desired, its alignment needs to be improved, its sections require to be increased and rectified, but the expenditure which such work would entail on an area covered by buildings has caused its postponement. Now, however, it might be undertaken with greater liberty, and a plan might be laid down from this point of view. There must be in the first place some broad lines of lay-out recognised, with which the plan of the town will coincide.

In this connection it should never be forgotten how much life and cheerfulness is given to a city by a stream of water running through it, when the water is clear. If necessary, measures must be taken and resolutely carried out in order to prevent its pollution. A river is a national possession which individuals have no right to poison. If the course of a stream is diverted, it should be considered whether its former bed might not be utilised for the formation of pieces of water round which public gardens might be grouped.

Again, in many places, alas! the devastation has been such as to create open spaces where once were buildings. If these come in the track of a road they should be respected, if possible, and made use of, so as to afford to the locality more air, light, and verdure—the triple formula which constitutes the town-planning gospel. That great administrative authority which governs the road might well in this way set an example which the local authorities might follow.

These, then, are a few general considerations which I think may properly be put on record at the present moment with regard to that great work of reparation, the re-making of our roads, which the morrow will impose upon us. They are written only from a personal point of view, with the object of arousing criticism.

The problem is a vast one, and its realisation costly. There are many points which will have to be looked to, and which cannot be dealt with in this short momorandum. It is the duty of each individual to ponder over the question and to submit his reflections for general criticism, for the advantage of our re-conquered country, whose gaping wounds must be healed, whose glorious future, assured to us by a heroic pride and determination, is already shining on the horizon.

LONDON COUNTY COUNCIL.

IN the course of the customary statement annually made by Chairmen of the London County Council as to the Council's activities during the preceding year, Mr. Cyril Jackson, the present Chairman, at this week's meeting of the Council, drew attention to the fact that the outbreak of war had resulted in the curtailment of public expenditure, and the consequent suspension of a large amount of work. In many cases new schemes had been definitely postponed, while several works which were in progress before the war had been either suspended or retarded.

Commenting upon the Council's various housing schemes, Mr. Jackson said that the population of their working class dwellings on March 31, 1915, was 37,122, and the gross rent receivable for the year exceeded £230,000. The year's surplus, after paying all outgoings, including debt charges on land and buildings, amounted to nearly £14,400. The Local Government Board had made an Order requiring the Council to deal with about four acres of the Brady Street area, Bethnal Green, and as a first instalment the Council had decided to make a scheme for the improvement of 2.03 acres of the area at an estimated cost of £53,000. This scheme involved the displacement of 1,121 persons of the working classes, and it was proposed to provide re-housing accommodation for 560 persons. Dwellings with accommodation for 620 persons were now in progress of erection on a portion of the Tabard Street area, Southwark. The estimated cost of the building work was £28,582.

In the early part of the year under review, continued Mr. Jackson, some desirable street improvements were sanctioned. The total estimated gross cost of these improvements amounted to upwards of £360,000, and the net cost to over £225,000. In the session of Parliament of 1914 power was conferred for the improvement of the approach to the Mall from Charing Cross, and arrangements for the execution of the work were proceeding. Satisfactory progress had been made in disposing of the

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surplus lands from the Holborn to Strand and Westminster improvements. As regarded the former, very little land now remained to be dealt with except the central portion of the crescent site between the Strand and Aldwych.

DISPUTED AWARD OF ARBITRATOR.

IN the King's Bench Divisional Court on Thursday afternoon, June 24, Justices Ridley and Shearman had before them the case of Lovatt, Ltd., *v.* Roberts. It was a motion by Messrs. Lovatt, builders and contractors, of Wolverhampton, to set aside an award of Mr. Oswald Wylson, architect, of Southampton Street, W.C., upon matters in dispute arising out of a contract for the erection of a building in Fleet Street, E.C., to the order of Colonel Herbert Harrington Roberts, of Kensington.

Mr. J. A. Compston, K.C., and Mr. Bromley Eames appeared for the appellants, and Mr. Lancelot Sanderson, K.C., M.P., and Mr. J. D. Crawford for the respondent.

In stating the case for the builders Mr. Compston said the award of Mr. Wylson was dated December 8 last, and the submission was dated three days earlier. The first ground upon which it was asked that the award should be set aside was that the arbitrator decided without any judicial inquiry or any inquiry whatever, except that before the submission there was an informal discussion between Mr. Wylson and the parties. This was a discussion with him in his capacity as architect as to certain matters arising between the building owner and the contractors, and the latter said they had not the slightest notion that it was to be treated as the hearing of the points which they afterwards submitted. Appellants contended that consequently they never had an opportunity of properly presenting their case to the arbitrator who, they submitted, had exceeded his jurisdiction, and that the award was bad on the face of it. The award was against appellants for £427, no part of which, they contended, could properly be awarded against them.

The matter (proceeded Mr. Compston) arose under a contract dated February 9, 1912, by which appellants were to pull down a building, well known and familiar to most of them, he thought, as the old Post Office in Fleet Street, close to the entrance of the Inner Temple, and to erect on the site the present Post Office and other buildings. The contractors agreed to erect the building for a sum not exceeding £10,500. The work was required to be done in a great hurry, and there was not time to get the usual tenders. It was admitted that the contract was completed by the appellants with the exception of the items submitted to arbitration, and that a sum of £12,185 was payable to them in respect of the work, which was £1,685 in excess of the contract, showing there was extra work. A sum of £10,100 was paid on account, leaving a balance of £2,085. Subsequently an amount of £1,500 was paid, leaving £585, and in respect of this balance Mr. Wylson had awarded the builders £158.

Mr. Justice Shearman: What were the points in dispute?

Mr. Compston: These, my Lord. In November 1914 eighteen months after the completion of the work and the delivery of the building, the landlord, as we say for the first time, said, "There are certain defects in your work which we have made good without reference to the architect, and we claim to be recouped something. Next you are shockingly out of time in regard to the completion of the building, and we claim £800 for penalties, our total claim being £933." Upon that the arbitrator has awarded against us for defects and penalties to the extent of £427. Counsel went on to say that a plethora of strikes caused considerable delay in the completion of the building, and an extension of time was provided for in the contract, but Messrs. Lovatt complained that the architect had never certified what extension of time ought to be given. There was also a penalty of £50 per week attaching to the builders in respect of delay. Not only was there no profit on the building, but an actual loss, and the builders appealed to the surveyor of the building owner to grant them a sum of money beyond the agreed price. The surveyor, however, said he had no authority to consider such an allowance. The contract provided that any matters in dispute should be referred to a Mr. Woodward as arbitrator, but nevertheless these were decided by Mr. Wylson, who was a member of the firm of Messrs. Wylson & Long, the architects under the contract.

Mr. Justice Shearman: The builders signed a document giving Mr. Wylson full power to deal with the points in dispute. Now you say he has no jurisdiction. Your clients consented to his hearing the claim.

Mr. Compston: Which I say is a perfectly unfounded claim.

Mr. Justice Shearman: Unfortunately arbitrators are more secure than some people.

Mr. Compston: But we have not given him the power in the contract to decide against us contrary to law. We are entitled to have the certificate of Messrs. Wylson & Long, and I contend there has been misconduct in a legal sense on the part of the architect in not giving the builders an opportunity to argue the construction of the contract.

Without calling on Mr. Sanderson for the building owner, Mr. Justice Ridley said the Court had come to the conclusion that the builders had not established their right to set aside the award. It was quite true that the case, like many others which came before the Courts, was one which had been decided by the arbitrator without hearing to the full, at all events, either of the parties. They were heard to the extent mentioned, but his Lordship thought the case was not completely heard out. But it appeared to the Court on full consideration of the documents and of Mr. Wilson Lovatt's own affidavit that the architect had their consent to arbitrate on the matters in dispute. The architect ordinarily had to settle disputes like those which arose under this contract, and although the case was quickly and finally disposed of, with much less ceremony than frequently happened, his Lordship was of opinion the award must be upheld, and the appeal failed.

Mr. Justice Shearman, in expressing agreement, said all awards rested on consent of the parties, and in his opinion Mr. Wylson did no more than was contemplated by those concerned. At the interview with the architect his Lordship thought the builders desired speedily and inexpensively to settle everything that was to be settled, and they did settle everything but the two outstanding points raised by the building owner, because they immediately afterwards drew a substantial sum of money. His Lordship thought the decision was to give the fullest control and jurisdiction to the architect as arbitrator, who had already disposed of all except these two particular points, and who was conversant with the work since its commencement. There was no excess of jurisdiction, and nothing which showed that Mr. Wylson had made a mistake in law.

The appeal was then dismissed with costs.

Mr. Bromley Eames, for the builders, asked for leave to appeal to the Court of Appeal, but Mr. Justice Ridley remarked: "We refuse it, but you have the right to appeal without our consent."

THE METROPOLITAN WATER BOARD AND RESEARCH WORK.

THE Water Examination Committee of the Metropolitan Water Board report that they have had before them the eleventh report by the Director of Water Examination on Research Work and they consider it to be not only of scientific interest, but of great practical importance.

The first part of the report deals with the lime experiments at Sunbury, and they desire to draw the attention of the Board to the Director's summary of conclusions set forth on page 18.

By adding less than 1 lb. of lime to 500 gallons of raw Thames river water the following remarkable results were obtained.

The water before it left the first tank was greatly improved as regards colour and turbidity, and the total number of bacteria was reduced over 99 per cent.

The B. coli results were specially worthy of note, for whereas the raw river water before treatment contained B. coli in 1 c.c. in 41.2 per cent. of the samples, yet after treatment there were no B. coli in 10,000 c.c.

The Director considers that such a water could not conceivably have contained any of the microbes of epidemic water-borne disease (*e.g.*, typhoid fever); and he concludes with the following strong statement:—

". . . no hesitation is felt in expressing the opinion that river water, no matter how impure, may be brought into a condition of absolute safety bacteriologically, and of great relative purity chemically by means of lime."

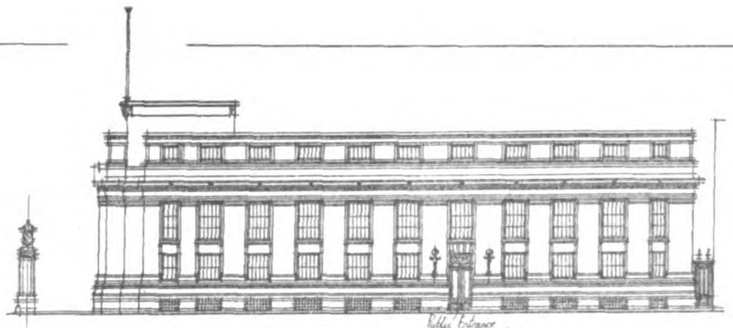
There seems some ground for believing that the lime treatment is effective in dealing with algal infected waters.

The Committee is convinced that lime, when used in

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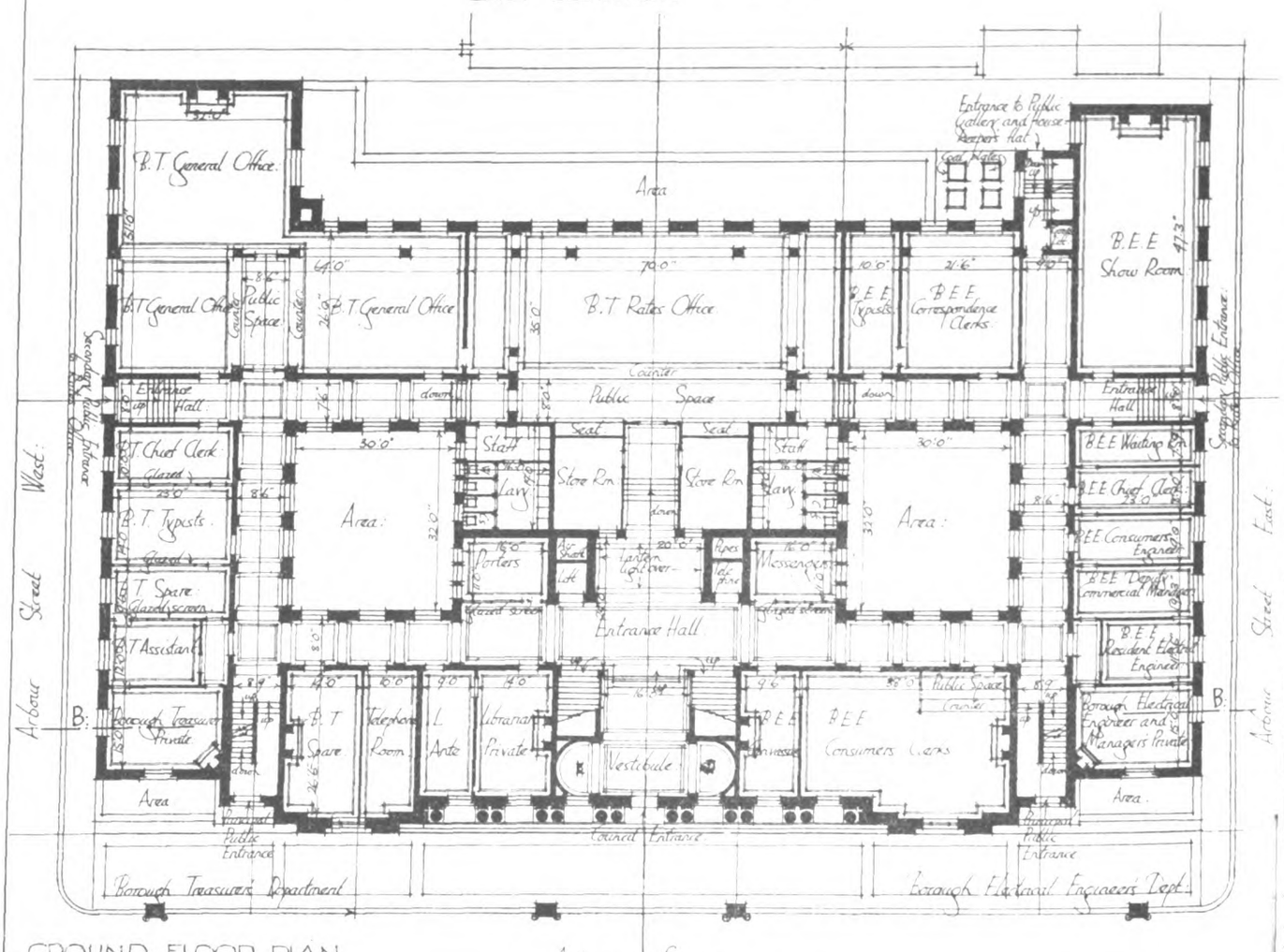


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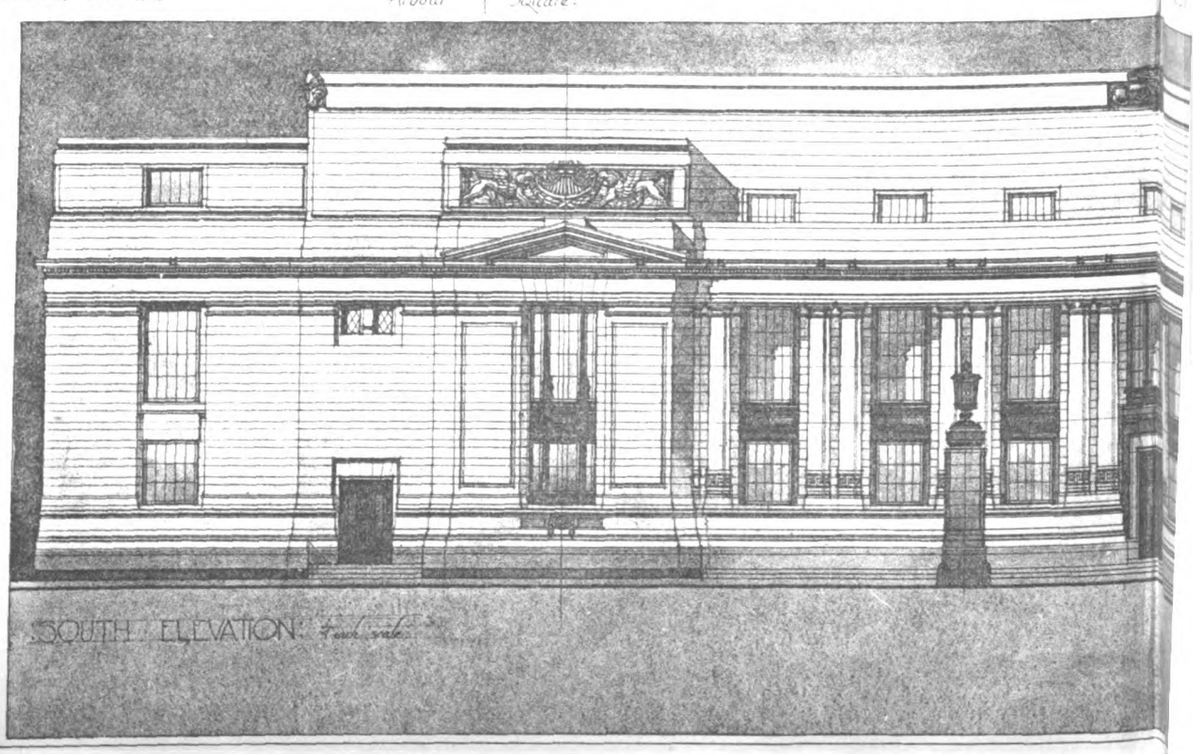


EAST ELEVATION



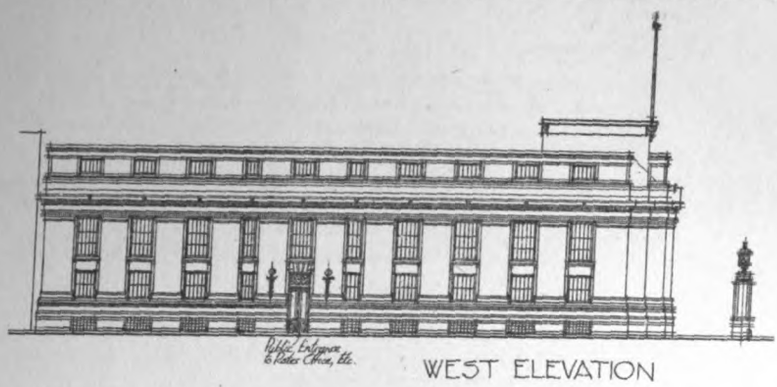


GROUND FLOOR PLAN

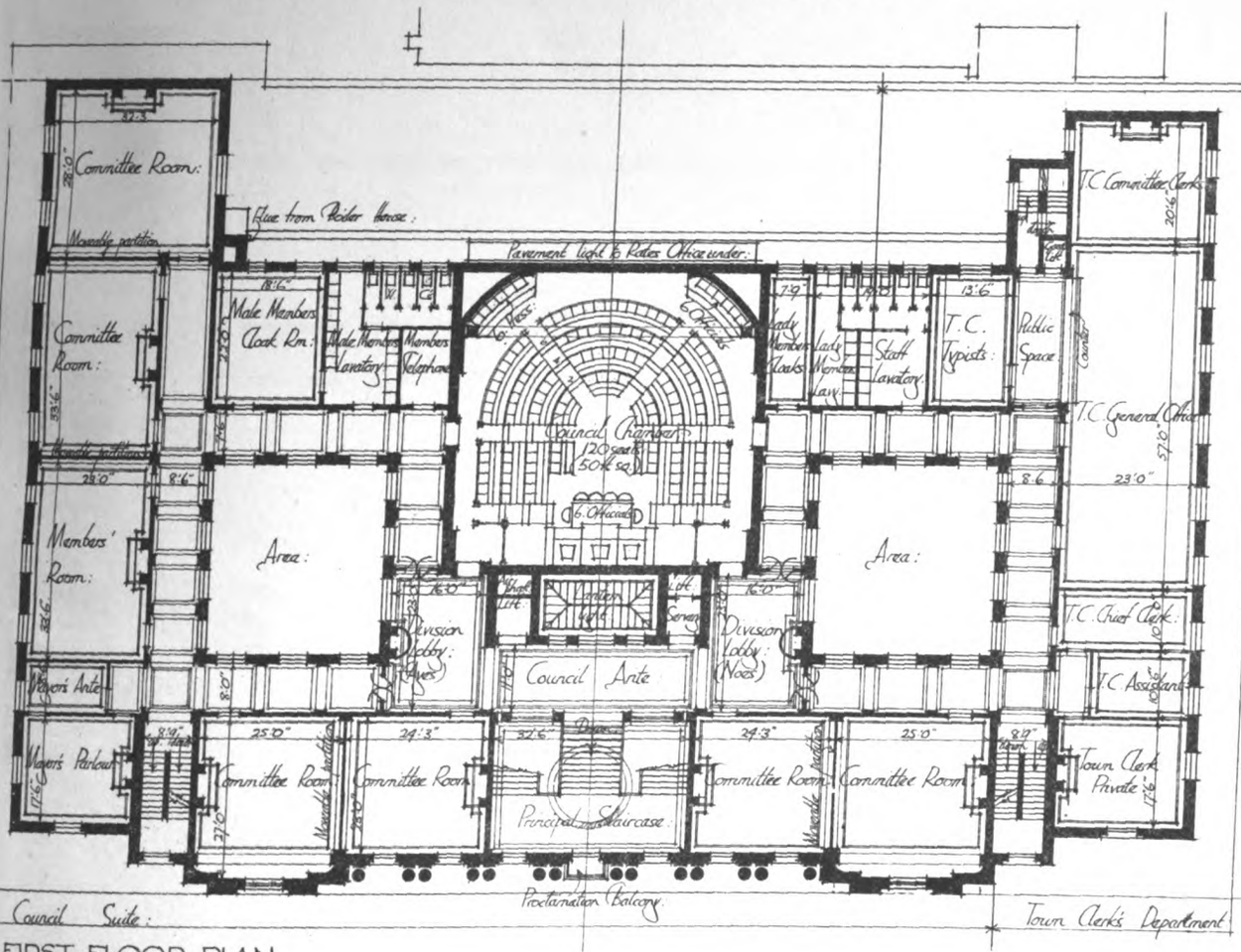


SOUTH ELEVATION

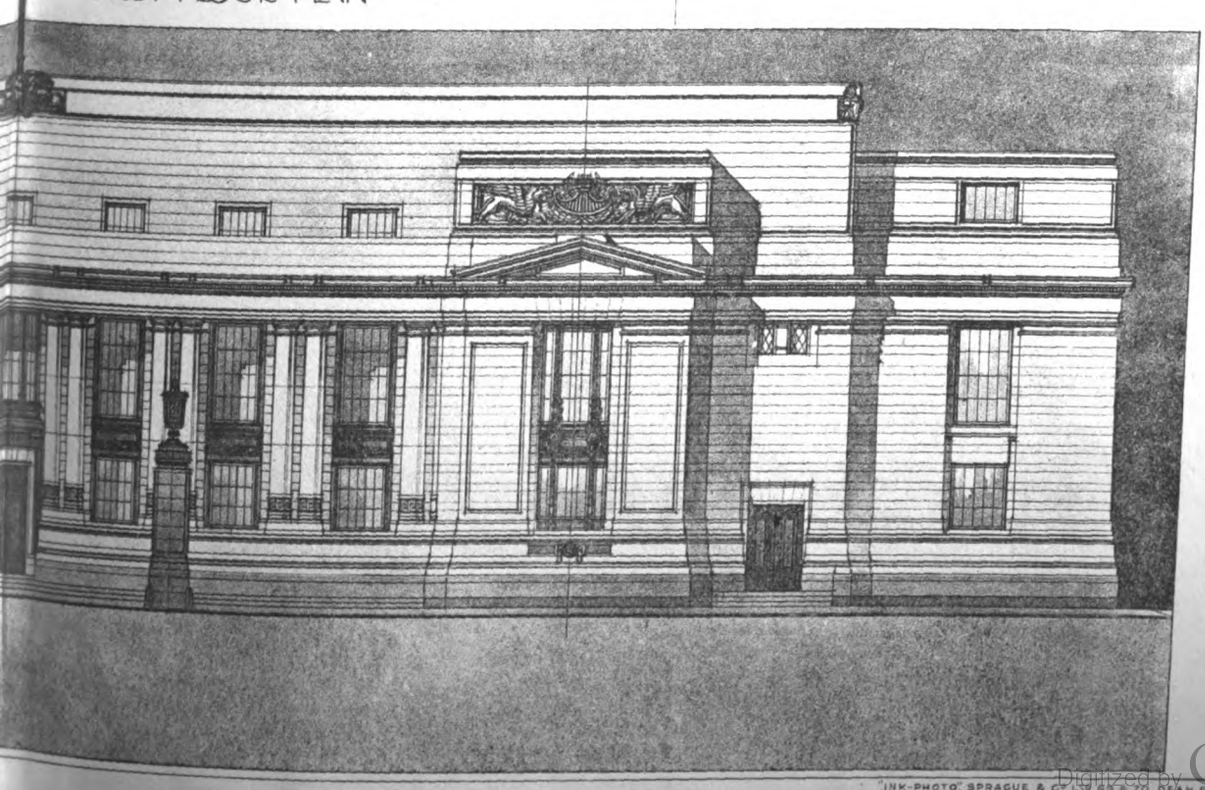
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WEST ELEVATION

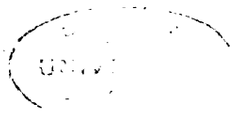


FIRST FLOOR PLAN



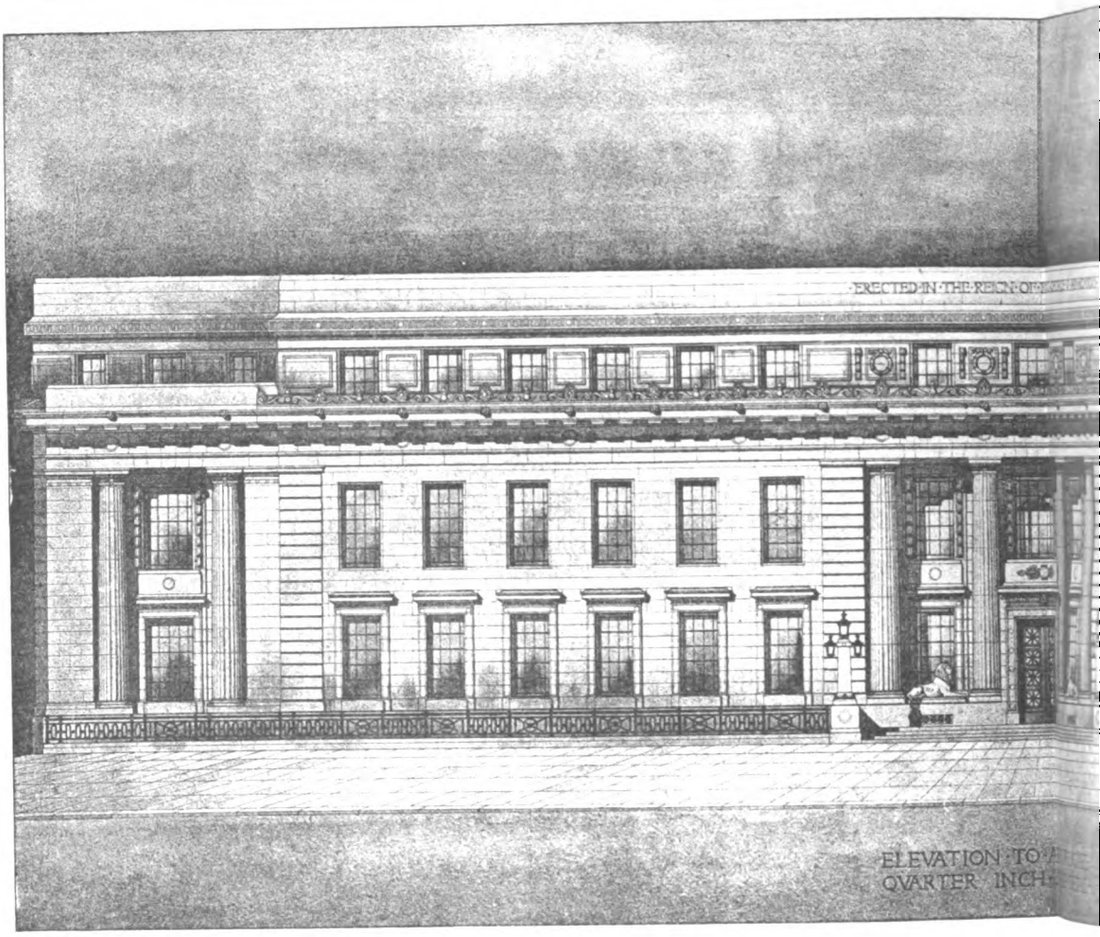
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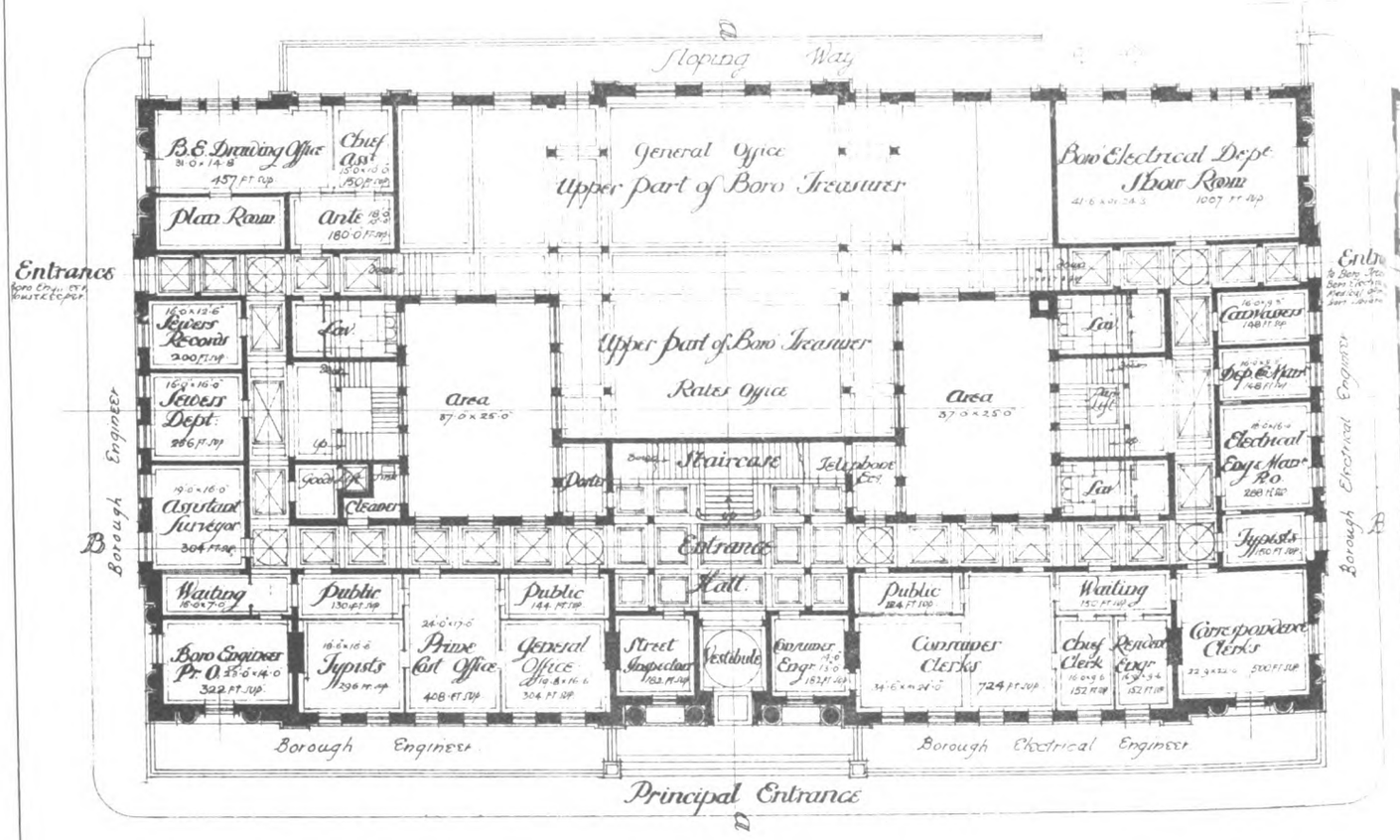
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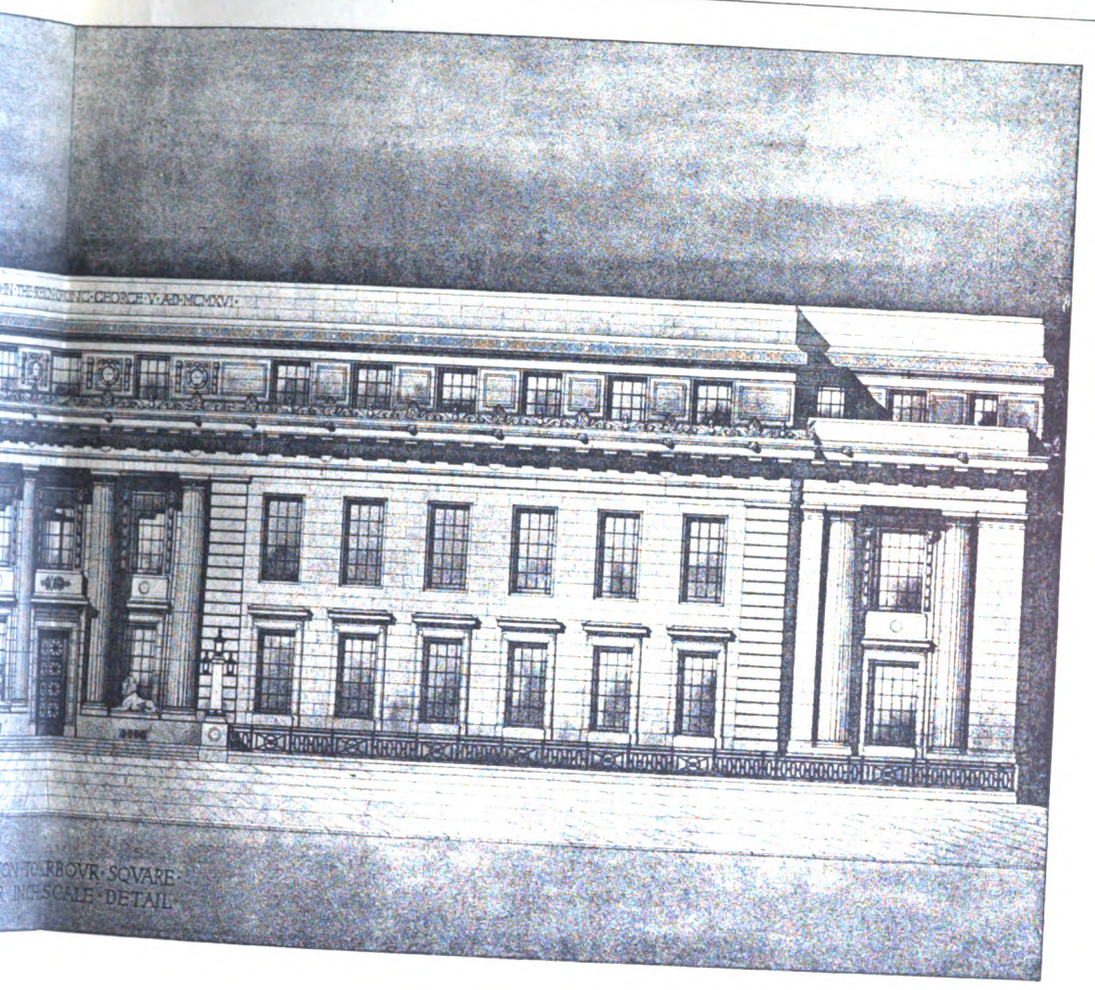


Arbour Ground Floor Plan Squars

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COMPETITION FOR NEW MUNICIP

First Premiated Design by Messrs. BRIGGS



Note: If preferred the portion of Council Chamber below Gallery may be pierced off at suitable time, Joiners Clerk to consult the seating being rearranged

Town Clerk

Lady Members Robing 24·0×18·0

Ladies Cloak

Cloak

Members Robing 32·0×24·0 768 ft sup

Members Lavatory 24·0×12·0 288 ft sup

Council Chamber 57·0×57·0 3250 ft sup

Town Clerks General Office 40·0×33·0 1320 ft sup

Chief Clerk 18·0×8·0 144 ft sup

Committee Clerks 24·0×22·6 540 ft sup

Typists 18·0×17·0 306 ft sup

Assistant Town Clerk 17·0×9·0 153 ft sup

Public 15·0×10·0 200 ft sup

Area 37·0×25·0

Area 37·0×25·0

Committee Room 36·6×24·0 872 ft sup

Cleaners

Lavatories

Lobby

Town Clerks Private Office 24·0×18·0 432 ft sup

Waiting Room

Clerks Room 17·0×10·0 170 ft sup

Committee Room 32·0×23·0 736 ft sup

Committee Room 26·0×24·0 624 ft sup

Committee Room 26·0×24·0 624 ft sup

Members Room 20·0×20·0 1900 ft sup

Committee Room 26·0×24·0 624 ft sup

Committee Room 26·0×24·0 624 ft sup

Mayors Parlour 22·6×21·0 479 ft sup

Balcony

Entrance

Town Clerk

First Floor Plan

Scale of Feet. 0 5 10 20 30 40 50 100 ft

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CIPAL BUILDINGS, STEPNEY.

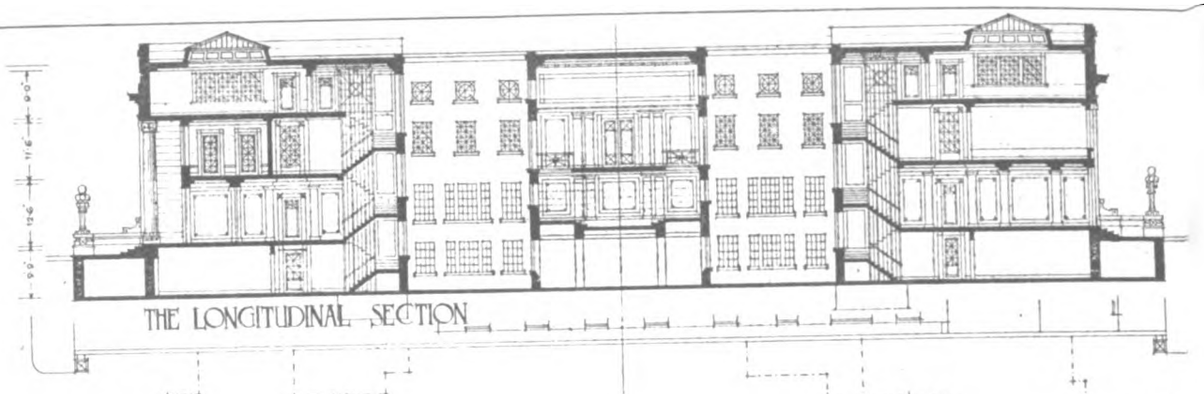
S. WOLSTENHOLME & THORNELY.

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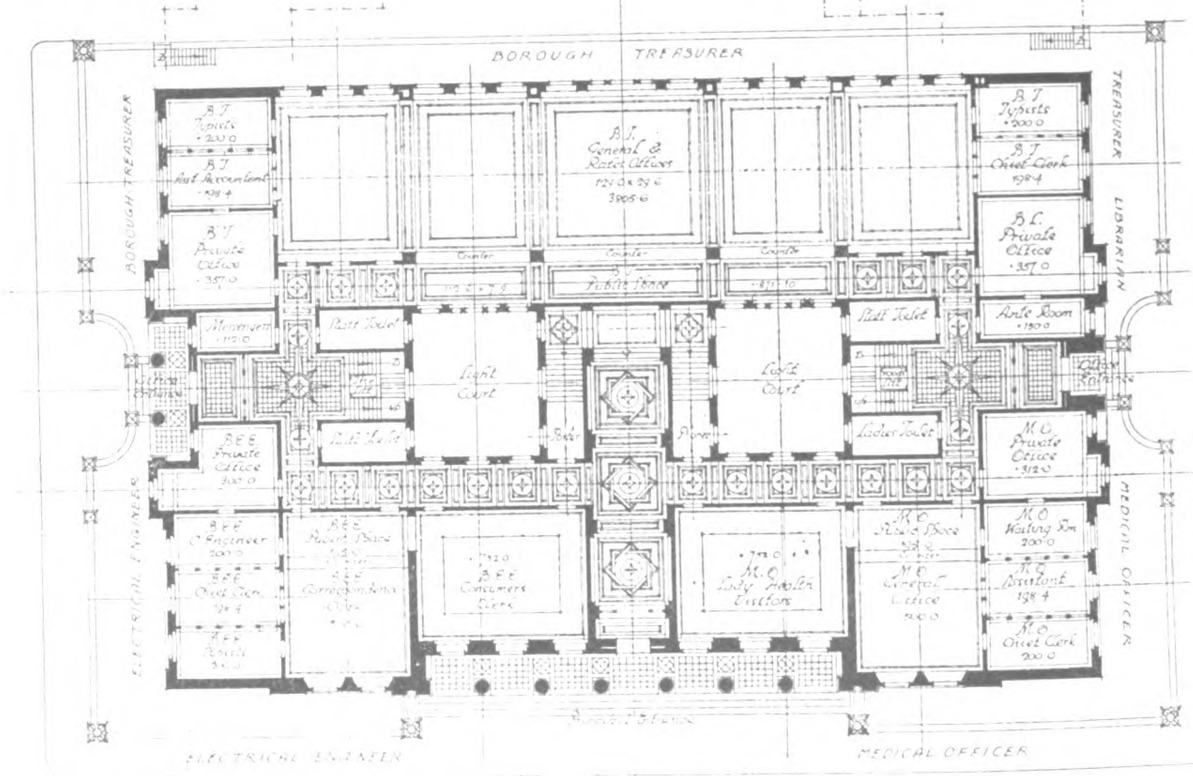


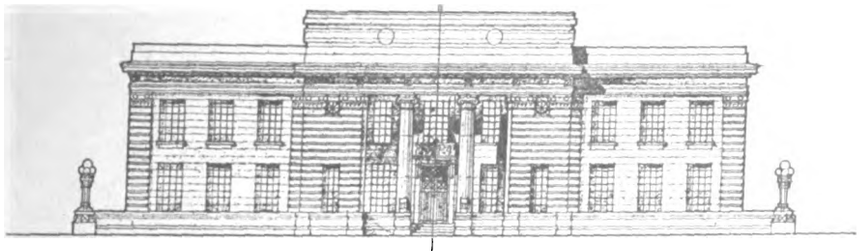
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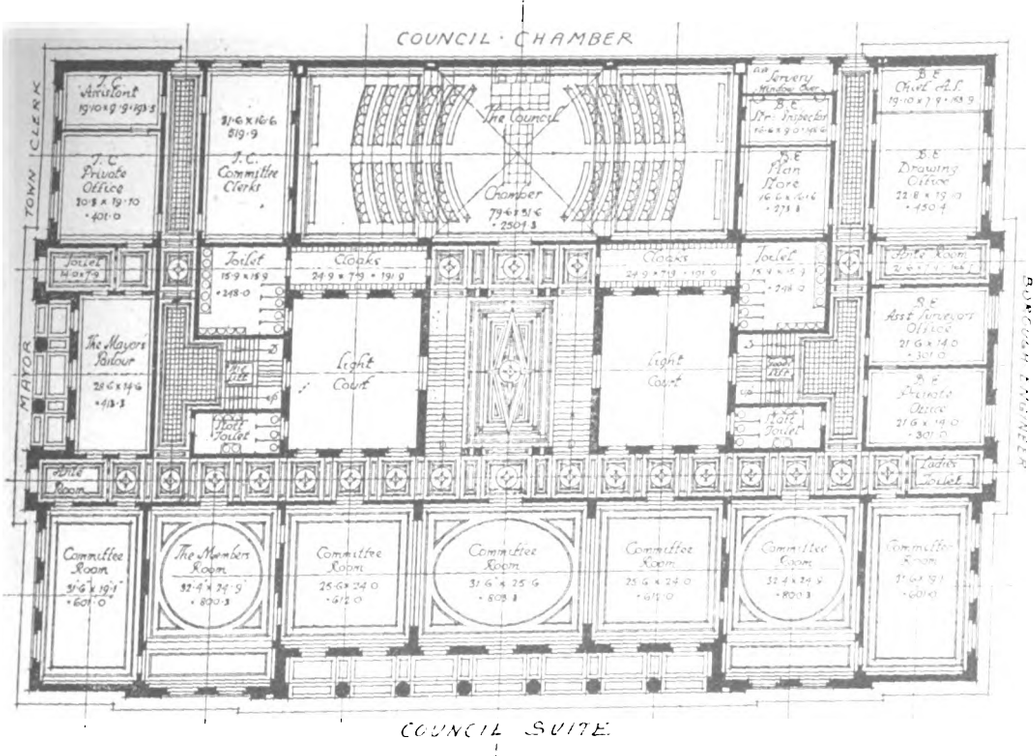


THE LONGITUDINAL SECTION


BOROUGH TREASURER
BOROUGH TREASURER
TREASURER
LIBRARIAN
ELECTRICAL ENGINEER
MEDICAL OFFICER
Light Court
Light Court
Public Lobby
Counter
Counter
Counter
Public Lobby
Public Entrance
Public Entrance
Public Entrance

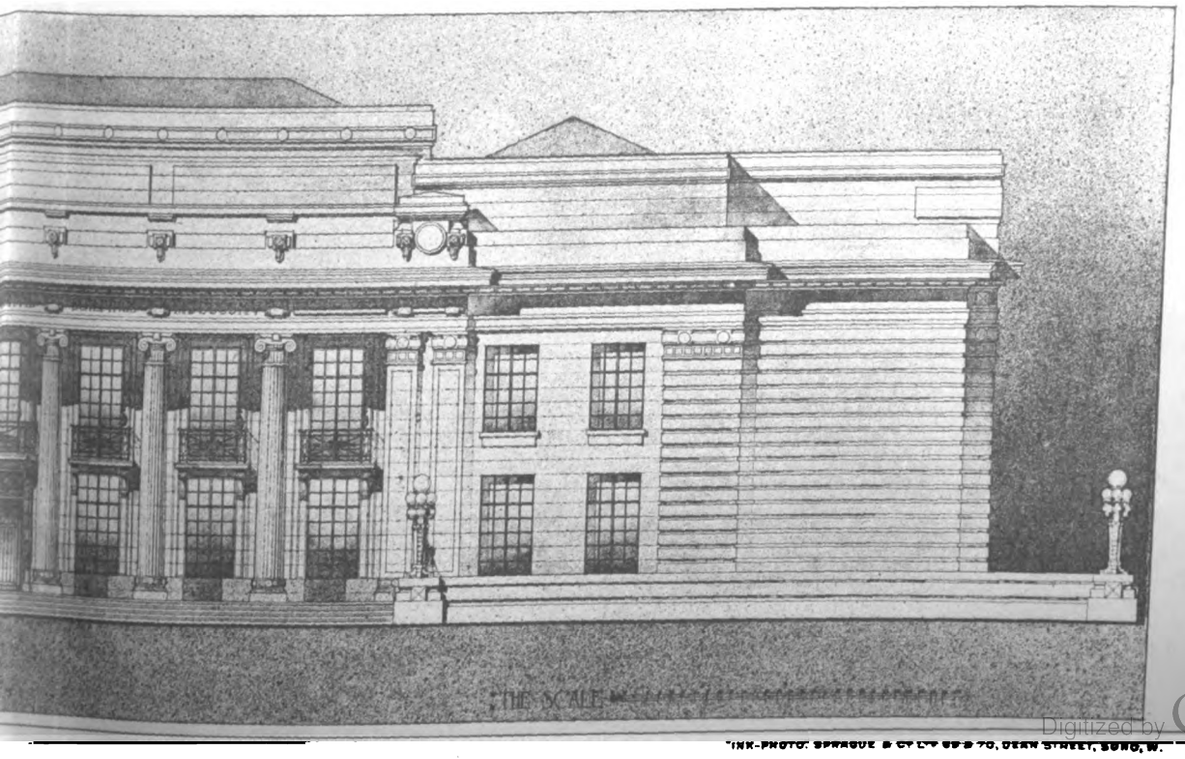


THE ELEVATION TO ARBOUR ST. W.



THE PRINCIPAL FLOOR PLAN

0 1 2 3 4 5 10 15 20 Feet



THE SCALE

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slight excess, can render most impure water safe for domestic use. As regards the practicability of the process on a large scale, they endorse the cautious statements made by the Director. There can be no doubt that in the case of very soft waters (see the Director's notes on the Aberdeen supply, page 3 *et seq.*) sterilisation by means of lime is both a satisfactory and an extremely cheap method of purification. In the case of hard waters the cost is admittedly serious. On the other hand, the advantages to the consumer of a soft water are so material that it is perhaps a debatable question whether the process may not come to be regarded as a financially sound proposition. The whole question, in our opinion, is deserving of further investigation.

The second part of the Director's report deals with the critical study of microbes in the London waters which might conceivably be mistaken for true cholera vibrios. There can be no question that the world wide war now raging increases very appreciably the risks of epidemic water-borne disease. The Director had previously shown that his methods can detect the presence of cholera vibrios artificially added to water. He now shows that in the absence of cholera infection there are no microbes normally present in the London waters which can pass the mesh of his tests and pose as true vibrios. By his comprehensive study of the "normal," the Director is in a position to discover the "abnormal" should such a contingency ever arise.

Accompanying the report is an index to the previous ten reports, which undoubtedly will be widely welcomed.

ART IN LONDON.

IVAN MESTROVIC, SCULPTOR.

IT is seldom the lot of the art-critic in these days to encounter anything at once new and worthy in the ensemble of an exhibition. New by itself, unaccompanied by worth, may be discovered, such as the allied schools of post-impressionism display. In the work of the young Serbian, Ivan Mestrovic (which is now to be seen at the Victoria and Albert Museum), there are both novelty and merit; it is indeed extraordinary to realise that such work is the output of a man only thirty-two years of age, born of a peasant family, and whose childhood was spent amidst flocks and herds. There is a quality in his productions which reveals a freedom from academic restraint and convention, whilst at the same time there are no signs of the self-imposed tyranny of the Futurists, the Vorticists, and the Lunatists in general.

To architects the object of main interest must be the wooden model for the projected Temple of Kosovo, "the Southern Slav Valhalla, which he has conceived as the artistic interpretation not merely of Serb national and religious aspirations, but of the wider teachings of humanity." In plan it takes the form of a Latin cross with an octagon crossing. The building along its major axis would fill Trafalgar Square. It is quite impossible to allocate this design to any recognised architectural style, whether in plan or otherwise; the main entrance flanked by external chambers gives access by a broad and shallow flight of steps to the long hall leading to the octagon. The hall is to be decorated with caryatids typifying Serbian womanhood under Turkish oppression; the octagon hall is to receive a great Sphinx, symbolic of the destinies of the Southern Slavs. The transeptal chambers are also external to all appearance, and they are crowned by octagonal domes which scale admirably with the colossal octagonal central dome, all three being stepped from base to summit. The long hall is flanked by external colonnades, and the octagon is similarly decorated. The temple is to be hypaethral, and whilst its constructive materials will be grey marble for the interior and grey granite externally, it will be freely decorated with bronze capitals, friezes, panels, lions, &c. The description of the temple would be inadequate were attention not directed to the remarkable six-staged tower surmounting the inner portion of the long hall. The symbolic bronze groups and the good proportions of the storeys bear eloquent testimony to Mestrovic's genius. Whilst the expression and pose of the statuary executed by this artist are often displeasing to our English ideas, unstinted praise is due to the modelling, excellent examples being "The Dancing Woman" (48) and "Torso of a Hero" (26). Frankly, the groups of caryatid figures do not display the artistic qualities of the Erechtheion, though we can approve No. 28. The religious subjects are not satisfactorily treated, but seeing that we are told that "there is no religious life in the Balkans" the lack of sympatica may be understood. Though much more deserves individual notice, we must be content with reference to No. 37, a noble conception of the artist's mother and nobly executed. It is an exhibition which cannot fail to attract much public notice.

R.I.B.A. EXAMINATIONS.

THE FINAL: ALTERNATIVE PROBLEMS IN DESIGN.

Instructions to Candidates.

1. The drawings, which should preferably be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9 Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his full name and address, and the name of the school, if any, in which the drawings have been prepared, must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work and that the drawings have been wholly executed by him. In the preparation of the design the student may profit by advice.

4. Drawings for subjects (*a*) are to have the shadows projected at an angle of 45° in line, monochrome, or colour. Drawings in subjects (*b*) are to be finished as working drawings. Lettering on all drawings must be of a clear, scholarly, and unaffected character.

Subject XXII.

(*a*) The Entrance Façade to a Tube Railway Station in a Main Thoroughfare.—The total width of the façade available for both approaches and exits to be 40 feet. The upper part is to be let off as offices with separate entrance and staircase.

Drawings.—A plan to ⅛-inch scale, showing the arrangement of booking offices, &c., and an elevation and section of the façade to ½-inch scale.

(*b*) A Co-operative Stores in a small village of 300 inhabitants, to be managed by a resident salesman. The shop, to be built on the south side of the village street, should be portioned off into groceries, provisions, and drapery—the latter with a top light. There should be considerable storeroom accommodation in connection. The salesman to have a living-room, kitchen, and usual offices, three bedrooms, and bathroom.

Materials.—Brick and tiles, with rough-cast if desired.

Site.—A corner site with chief frontage 54 feet to main road, and a small lane at the side.

Drawings.—Plans of each floor, one section and two elevations, with one detail, ½-inch scale, of portion of front elevation.

Subject XXIII.

(*a*) A School Chapel to accommodate 250, of whom 150 are boys. Gallery at west end for organ and choir. Vestry for clergy and choir. Entrance porch, or narthex, with way up to gallery. Screen under gallery shutting off entrance from chapel.

Drawings.—Plan and two elevations to ⅛-inch scale, cross-section and one bay longitudinal section to ½-inch scale.

(*b*) A Doctor's House (detached), to be built in stone on a corner site, say, 80 feet by 200 feet, in the main road of a provincial town, such as Stamford.

Accommodation.—Separate entrance for patients; consulting and waiting rooms near the kitchen part of the house. Front and back stairs. Good drawing-room and dining-room, five ordinary bedrooms, with one dressing and two bath rooms, and usual offices; one bedroom for a resident patient, with bathroom adjoining, and small bedroom for nurse. A study or morning-room is optional. The house is to be set back from the road on both frontages. A small garage without living accommodation is desired.

Drawings.—⅛-inch plans and two elevations and one section and a small block plan.

Subject XXIV.

(*a*) The accompanying plan shows a large house built in 1810, standing 110 feet back from a main road now much used by motor traffic. The owner is greatly inconvenienced by noise and dust, and desires to enclose his forecourt in

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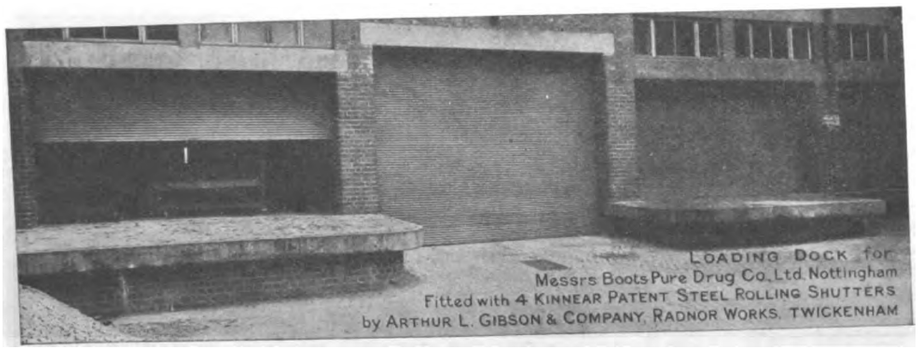
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order to shut off these nuisances as far as possible. He has need of a studio for wood and metal work, an orangery for winter storage and shrubs, a loggia overlooking the garden, and a garage. A turning circle 70 feet in diameter must be allowed for motor-cars. Show how his requirements may be best attained. The site falls 3 feet towards the south.

Drawings.—Plan, elevations, and sections $\frac{1}{8}$ inch to 1 foot. Details, $\frac{1}{2}$ inch to 1 foot.

(*b*) A Group of Residential Flats standing on an open site arranged round a quadrangle which is 150 feet square. The buildings to be in two storeys, and the flats generally to contain living-room, small kitchen and larder, two or three bedrooms, w.c., and bathroom. There is to be an arrangement of a central dining-room and kitchen, &c., with accommodation for servants to attend to this department, and also to give a limited amount of service in the flats.

Drawings.—Plans, elevation, and section to $\frac{1}{8}$-inch scale, and $\frac{1}{2}$-inch detail of main entrance to quadrangle.

Dates for Submission of Designs in 1915-16.

	Subject XXII.	Subject XXIII.	Subject XXIV.
United Kingdom	Aug. 31	Oct. 31	Dec. 31
Johannesburg	Oct. 31	Dec. 31	Feb. 28
Melbourne	Nov. 30	Jan. 31	Mar. 31
Sydney	Nov. 30	Jan. 31	Mar. 31
Toronto	Sept. 30	Nov. 30	Jan. 31

ASSOCIATION OF OLD STUDENTS OF THE ROYAL COLLEGE OF ART, LONDON.

THE above Association, being one of the most fully and widely representative bodies of artists in the kingdom, comprising as it does painters, etchers, sculptors, designers, craftsmen, architects, and art masters, many of whom are also members of the chief art societies in the country—namely, the Royal Academy, the Royal Society of Painter Etchers, the Royal Society of British Artists, the Royal Society of British Sculptors, the International Society of Sculptors, Gravers, and Painters, the Arts and Crafts Exhibition Society, the Royal Society of Arts, and the Art Workers' Guild—feeling the necessity that steps should be taken to initiate some form of action which would in a purposeful way tend to promote a greater elevation of artistic taste, decided at the annual general meeting to send a deputation to the President of the Board of Trade to express their views.

The deputation, consisting of the following members of the Old Students of the Royal College of Art: Messrs. Alexander Fisher (President), John Eyre (Vice-President), J. J. Brownswood, D. McGill, Walter Wallis, F. P. Brown, and H. Brown (Hon. Secretary), duly waited upon him and presented the following recommendations:—

1. To arouse and quicken throughout all classes of the community a more intelligent appreciation of the value and necessity of art and art productions of every kind by an extended system of art education in all schools and colleges, and by holding regularly national exhibitions of art productions.

2. To co-ordinate the whole system of art education.

3. To bring all sections of art producers together, giving them unity of interest.

4. To call together a deliberative assembly of representative artists, art masters, manufacturers, distributors, educationists, and others, as a first means of considering the above proposals.

5. To hold a public conference to discuss these measures.

In support of these propositions they asked the Board of Education to deal fundamentally with the art education of the country, beginning by making the development of the creative artistic faculty and drawing part of the curriculum of every elementary school and upwards to the higher grade schools and universities.

The movement should be a national one, as no individual art society would have the power to combine all art interests.

Complete unity of purpose and extended effort being the essential desideratum towards fostering and encouraging a more widespread appreciation of the benefits and advantages accruing from the development of a deeper artistic sense as well as to hold an increasingly high and worthy position among civilised nations to which the country is entitled.

Details connected with the organisation and administration of the schools were also dealt with.

In reply the President said he welcomed the suggestions brought forward by the Old Students of the Royal College of Art, and pointed out that one difficulty which had to be overcome before satisfactory co-operation between manufacturers and artists was established was the feeling which existed with some manufacturers that artists did not understand the economic conditions which attached to the workshops, but he hoped in the near future for a closer connection between art schools and the manufacturers.

He stated that the Board of Trade and the Board of Education were anxious to promote exhibitions which would arouse interest in new industries, and which would restore the application of art to existing industries.

The President concluded by saying that the Board were always willing to consider practical suggestions, and in cases where it was possible were prepared to adopt them.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Urgent Demand for Fireproof Buildings and Sleeping Huts in Munition Centres.

SIR,—With reference to Mr. Sang's letter in your issue of June 25, this gentleman has not given his address to apply for particulars.—Yours, &c., C.

St. Bartholomew the Great.

SIR,—The difference of opinion between Mr. Webb and myself regarding the apse of St. Bartholomew's resolves itself into this: Whereas he believes that there once was one, I think that it has been demonstrated that his view is erroneous. I will restate my reasons definitely:

1. An examination of the ground on the east side of the Purgatory enclosure showed that it had never before been disturbed for foundations as occurred in the case of all the other old columns.

2. The cross arches of the eastern ambulatory occupy their original position, the two on a line with the north and south walls of the Lady chapel still carrying remains of solid contemporary walls which quite cut off the triforium on each side.

3. A semi-circle drawn through the centres of the four old columns (on which the two new columns have been placed) is nowhere tangential to the axis lines of the north and south arcade.

4. The discovery of portions of the Norman triforium arcades in a fragmentary state merely proves the intention originally to build an apse, with which I perfectly agree.

Although I regard these four facts as finally disposing of the apse theory, I will offer some further remarks on them. Nos. 1 and 2 are dwelt on at some length by Parker in his paper published in the *Gentleman's Magazine*, which is illustrated by, among others, a view of the eastern ambulatory which I made for the purpose in sepia, and which is still extant. This drawing shows both these cross arches and the old piers built into the walls which Mr. Webb seems to think I overlooked. No. 3 opens up an entirely new view of the apse question not before made much of, but which was the source of considerable doubt in the minds of the first restorers as well as worry. They were very pleased when they discovered that the bases of the four piers were curved to fit the sweep of an apse, but not so pleased when they found that they did not fit the curve as it was built. The explanation of the whole mystery may be this. Under the influence of William de Corboyle all idea of the apse had been abandoned for the square east end, but some of the stonework for it had been prepared, among which were the four old columns with their curved bases. These were used, but placed further east than originally intended as well as spread out a little more, so that their curved bases did not coincide with the apse curve, while the two western bays had to be "fudged" to join on to the straight.

The question of the exact date of the destroyed east wall does not affect the apse question, but I am sorry circumstances prevent me at present from answering Mr. Webb's courteous letter at greater length.—Yours, &c.,

5 Burlington Gardens, W. J. TAVENOR PERRY.

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BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CAMBRIDGESHIRE.

Ely.—Isolation Hospital, St. John's Road. Mr. S. J. Wearing, A.R.I.B.A., architect, 15 Upper King Street, Norwich.

CHESHIRE.

Ellesmere Port.—Proposed isolation hospital.

CUMBERLAND.

Carlisle.—House, Walby, for Mrs. Thompson (of Warwick Terrace).

ESSEX.

Southend-on-Sea.—St. Mary's Church, Prittlewell: alterations to the Jesus Chapel (£1,200). Mr. P. Willoughby, architect, 5 Tavistock Square, London.

GLOUCESTERSHIRE.

Southmead.—Infirmary: chapel (£1,500), for Bristol B.G.

Stroud. — St. Alban's Mission Church (Stanton Memorial).

HAMPSHIRE.

Aldershot.—Premises, Station Road. Messrs. Friend & Lloyd, architects, 45A Grosvenor Road.

Isolation Hospital, North Town: addition. Mr. F. C. Uren, Council surveyor.

KENT.

Tonbridge.—Post Office, High Street (£8,000 to £9,000).

LANCASHIRE.

Barrow.—Proposed Council school, Barrow Island.

Preston.—Sanatorium and tuberculosis hospital, Ashley Hall Farm.

MONMOUTHSHIRE.

Pontypool (near).—Sanatorium, Park Estate.

NORTHAMPTONSHIRE.

Irthlingborough.—Cinema, for Mr. C. A. Hazeldine.

NORTHUMBERLAND.

Newcastle-upon-Tyne.—Y.M.C.A. premises, Savile Row: additions and alterations. Mr. A. B. Plummer, F.R.I.B.A., architect, 13 Grey Street. Mr. S. Miller, contractor, North Street, Saville Road.

STAFFORDSHIRE.

Rowley Regis.—Technical schools.

SUFFOLK.

Ipswich.—East Suffolk and Ipswich Hospital: additional wards (£3,500).

SURREY.

Guildford.—Proposed forty-two workmen's houses, Old Farm and Woking Roads (£10,500).

Proposed twenty Garden City houses, Woking Road.

Richmond-on-Thames.—Houses, Ennerdale Road. Messrs. Worsfold & Hayward, architects, Cannon Street, London, E.C.

SUSSEX.

Durrington.—Church and parsonage.

Horsham.—Council school (£5,400).

WARWICKSHIRE.

Coventry.—Two houses, Broadway, for Mr. H. Penn.

Two houses, Binley Road, for Mr. C. Blockley.

Eight houses, David Road, for Mr. J. Gardner.

Two houses, Farman Road, for Mr. E. Jordan.

Four houses, Harefield Road, for Mr. W. Crane.

Six houses, Orwell Road, for Mr. R. H. Barnacle.

Ten houses, St. George's Road, for Exors. of late George Storer.

Nuneaton.—Two houses, Norman Avenue. Mr. G. Cooper, builder, Midland Road.

House, Norman Avenue, for Mr. J. Swain.

House, Hinckley Road: additions, for Mr. A. H. Cawthorne.

Six houses, Marlborough Road, for Mr. A. Watkins.

House, Bracebridge Street, for Mr. J. B. Hingley.

Twelve houses and a shop, Bracebridge Street, for Messrs. Kelly & Son.

Parish room, Newdegate Place: extension, for Mr. C. Parsons.

Six houses, Sir Thomas White's Road, for Mr. B. S. Chinn.

Two houses, Sovereign Road, for Messrs. Osborne & Co.

Two houses, Terry Road, for Messrs. Jervis Brothers.

Three houses and a house with shop, Waveley Road, for Mr. G. Farmer.

Two houses with shops, Leicester Street, for Miss Juckes.

Two houses, Lowther Street, for Mr. E. Woodward.

House, &c., Little Park Street, for Mr. E. Harris.

Three houses, Richmond Street, for Mr. R. E. Matthews.

"Smithfield" Inn, Hales Street: alterations, for Messrs. Phillips & Marriott, Ltd.

Picture Palace, Stoney Stanton Road, for Mr. T. D. Griffiths.

Fettling shop, Northey Road, for the Sterling Metals, Ltd.

Motor-body making shop, West Orchard, for Mr. W. I. Iliffe.

"Swanswell" Tavern, White and Swanswell Streets: alterations, for the Northampton Brewery Company, Ltd.

WILTSHIRE.

Devizes.—Council school. County architect, Trowbridge.

WORCESTERSHIRE.

Malvern.—County Council school (£4,700).

YORKSHIRE.

Askern.—Shops. Mr. P. Robinson, F.R.I.B.A., architect, Hall Gate Chambers, Doncaster.

Carcroft.—P.M. Church (£1,700).

Hull.—St. Mary's Church, Sculcoates (£5,700). Mr. Temple Moore, F.R.I.B.A., architect, 44 Bedford Row, London W.C.

Withernsea.—Picture house. Mr. C. O. Lockey, architect, Gowan Bank.

WALES.

Dinas.—Destructor Works: Electricity Department Offices. Mr. E. H. Barber, A.M.I.C.E., Council surveyor, Council Offices, Pentre, Rhondda.

Glyncorrwg.—Twelve houses, Melyn Street: various works. Messrs. Jones & Thomas, architects, 6 and 7 St. John's Square, Cardiff.

Onllwyn.—Licensed premises: rebuilding. Mr. J. C. Rees, architect, Parade Chambers, Neath.

Portmadoc.—Isolation hospital. Borough surveyor.

Wrexham.—Guildhall: alterations. Borough surveyor.

SCOTLAND.

Clydebank.—Dining hall, Whitecrook Street (£1,800), for Mr. J. Russell (of 152 Glasgow Road).

Storehouse (£3,500), for the Yoker Distillery Co., Ltd.

Glasgow.—Picture house, 160 Battlefield Road, for Mr. J. H. Milligan.

School, &c., Bishop Street, Port Dundas, for Right Rev. Archbishop Maguire.

School of Art, 167 Renfrew Street: alterations.

Kilmarnock.—Electricity works: three cottages (£1,400).

Wishaw.—Proposed joint sanatorium, Muirburn.

IRELAND.

Newtownbarry (Co. Wexford).—Town hall.

LIEUTENANT HUGH CECIL BENSON, 9th Battalion the Rifle Brigade, was killed in action on June 22. Born in July 1883, he was educated at Eton, and entered the profession of architect. After training with the Officers' Training Corps he obtained his commission in December, and went to the Front with his regiment in May.

MR. LASCELLES P. ABERCROMBIE, M.A., A.R.I.B.A., has just been appointed by the Council of Liverpool University to the Chair of Civic Design rendered vacant by the resignation of Professor Adshead. Mr. Abercrombie has been Lecturer and Research Fellow in Civic Design in the University since 1909, and is at present in charge of the department. He is co-editor of the *Town Planning Review*. During the past few years Mr. Abercrombie has been awarded premiums in connection with several housing and town planning competitions, and has carried out important schemes. In partnership with Mr. L. B. Budden he was awarded the second premium of £300 in the competition promoted by the Corporation of Bradford for the development of their central area. Mr. Abercrombie has also acted as assessor in competitions of a similar character.

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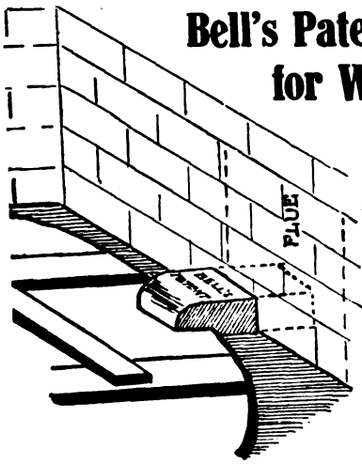
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THE ARCHITECT

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FORTHCOMING EVENTS.

Wednesday, July 14.

Royal Sanitary Institute: Sessional Meeting at Yeovil, at 11.15 A.M.

THE PROTECTION OF ANCIENT BUILDINGS.

ELSEWHERE in this issue we give the substance of a paper prepared for the forty-second annual general meeting and conference of the Institution of Municipal and County Engineers, by Mr. W. A. Forsyth, F.R.I.B.A. Confessedly, it embodies "the views held by the Society for the Protection of Ancient Buildings." It repeatedly intimates that the Society is always ready to place its experience at the disposal of public bodies, whose duty it is to preserve old structures from decay, and it makes the claim that its members have become experienced in the special and varied nature of repairs which become necessary for the preservation of ancient works. By implication the claim extends to an exclusive possession of this experience, and for the desirability of the professional employment of its members by all custodians of ancient buildings.

Whilst there is a great deal in Mr. Forsyth's paper which will commend itself to the mature judgment of those who are experienced in dealing with ancient buildings, even though they may not enjoy the advantages of membership of the Society for the Protection of Ancient Buildings, there are many points which to an unbiassed critic cannot appear other than regrettable fads, and out of consonance with such an enunciation of principle as the commendable statement that "All repairs or replacements should be distinctive, yet harmonious, for they form part of the story in stones."

The first sentence of Mr. Forsyth's paper reads: "The careful use of an old building ensures its best protection." This we may regard as a deferential and politic statement specially intended for the particular audience of the writer. It is distinctly at variance with past teachings of the Society for the Protection of Ancient Buildings, which has laid down the principle that rather than repair an old church and make it usable, it is preferable to build a new one. This earlier teaching is at least comprehensible. It may be an erroneous position, but it does at least conform with the initial axiom that the veritude of the historical record carved on the face of an old building is not only of primary but of paramount importance, and that to it all other considerations should be subordinated. Let us suppose, for example, that an old church has had its roof burnt off. The placing upon the walls of a new one would efface the record of the historical fact, therefore, if the earlier teaching of the Society is to be maintained, it must remain roofless.

The new doctrine that the best preservation of an old building is its user is no doubt true in the sense that the old building or some part of it will be longer preserved than if it remains historically truthful and roofless. A building cannot well be used without a roof, and the replacement of a vanished roof, whether the removal be by fire or other violence or by decay, is "restoration," usually not only of timber and tile, but of the upper parts of walls. The doctrine of user does not stop at the roof. It extends to windows and doors, floors and ceilings. It even connotes, spite of the qualification "careful," modification of the original structure, so that it can be used in accordance with modern ideas. Mr. Forsyth, with an audience of engineers before him, goes so far as to advocate that "The introduction of heating, lighting, and sanitary works in an ancient structure, while ensuring its use, are actually enhancing the means of protection."

There are still remaining some old buildings with windows that were never glazed, but unrestrictedly open save when the wintry gales enforced the use of wooden shutters. Now, if these are to be made usable, how is the destruction of ancient handicraft to be avoided? You cannot leave the old window openings as their makers left them, if you are to fit in glazing to make them usable. Verily, the present-day members of the Society for the Protection of Ancient Buildings have departed far from the principles of their founders—"William Morris and other great devotees of English art." User not only means "restoration," it leads on to modification, to alteration, to "destruction of ancient handicraft." The Society is no longer on its old landmarks. It has extended its field and is following precisely in the footsteps of those who, in the Victorian era, swept away anything which they considered interfered with the use that they or their employers wished to make of an ancient fabric. The three-decker had to go to make way for choir seats and clergy stalls, lectern, litany desk, and screen. Once admit the doctrine of user and it will be next to impossible to limit by any degree of carefulness its potentiality for alteration and destruction.

Having actually approved the introduction of heating, lighting, and sanitary works, Mr. Forsyth, and we presume the Society for whom he speaks, dictate that heating apparatus is to be placed "not necessarily in the most efficient situations," that "waste and ventilating pipes should be permitted in the interiors of houses under certain conditions." They seem afraid of their own hardihood in departing from the ancient landmarks of their founders. Old buildings ought to be used, but they ought not to be used efficiently or healthfully. How far we must stop short of efficiency and health we must wait to be told in each specific instance by the apostles of the strange new cult. "It is the custom of the Society to recommend that any expert employed should be continually upon the works." Why not go a step further and recommend that all work to ancient buildings should be done by the Society and its staff?

And what sort of "repairs or replacements" are they that "should be distinctive, yet harmonious"?

"The tops of walls, after the necessary preparation"—note the necessity of interfering with the historical facts—"can be covered with asphalt, tar-paving, tile or stone paving, &c., and then covered with turf laid in several cut thicknesses, and grass allowed to grow upon the top as a protection to the paving." Turf and grass as a protection to asphalt! Did Mr. Forsyth really think he could impress engineers with such foolish baby-talk as this? Why not say at once—"We have a whimsical liking for grass on top of a wall. We prefer this to the common sense and practical as well as artistically charming methods to be seen in France and Italy"?

Then there is advocacy of another modern fad of the Society. Its members nowadays characterise it as wicked to cut out decayed stone and put in sound. No, you must cut away the old stone—they are not a bit

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averse to getting rid of old material and craftsmanship, are these modern successors of William Morris—and having cut away old stone, which will necessarily not be decayed but sound, then they can introduce their panacea, "roofing tiles laid horizontally and rendered in mortar." How in the name of common sense are roofing tiles, with all their irregularity of form, to be considerable preferable as a substitution for stone, of which, as we have said, they must cut away sound material, like a dentist stopping a decayed tooth? And, having inserted their tiles, they are not content to leave their bungling handiwork honestly showing, but must render in mortar. They add a sham to cover their shame.

The faddists do not like cast-iron eaves gutters, so their employers are recommended to make a choice between cast lead and V-shaped eaves gutters of oak or teak, with "an occasional coat of tar on the inside." Historical truth goes by the board when a picturesque fad takes possession of the preserver. Again we say, these modern apostles are following in the footsteps of the Victorian restorers; the only difference is that fads founded on mediæval work by artists of high ability must now give place to fads founded on the vernacular of the eighteenth and early nineteenth centuries.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

FOR the final competition of the present series we have received a gratifying number of contributions, and we regret that this will be the last occasion of the Club's work until the restoration of peace.

"Sticket" has selected a subject which lends itself well to pen-and-ink drawing, the west end of the church of St. Mary, Beverley, fifteenth-century work with rich tracery and panelled surfaces. "Sticket's" drawing is well composed, but a little flat and all-overish.

Mr. L. Latham gives the central tower and crossing of Broadwater Church, Sussex. He has hardly yet mastered the difference between an ordinary architectural perspective and a pen-and-ink drawing. There is too much insistence upon constructional lines and too little attention to values.

"Ebor" has found his subject in the Moot Hall, Hexham, a picturesque group of the remains of the military architecture of the town. His drawing is of good pen-and-ink quality.

"Castra" chooses the upper gallery of one of Chester's Rows, in Water-gate Street. The drawing needs more study of light and shade to do justice to the subject, and particularly to its atmosphere, and is marred by the use of the excessive bounding line, a modern trick of black-and-white drawing that requires great skill if it is to be used at all.

Mr. Bright Fraser makes a good drawing of the famous Hall ith' Wood, Bolton, as far as the house is concerned, but fails to make a picture for want of a background.

Mr. W. A. Robb sends a good architectural perspective of the library of Trinity College, Cambridge; but it is not a good pen-and-ink drawing, and effectively submerges all feeling proper to the building.

We award a prize of one guinea for this month's work to Mr. Bright Fraser, and half a guinea each to "Ebor" and "Sticket."

The Travelling Studentship for the year has been won by Mr. Geo. H. Gray, who has contributed to the work of the Club under the *nom-de-plume* "Improver," and has consistently justified that cognomen from the days that he first worked for our prizes. He has, however, been very closely approximated for the Studentship by Mr. Bright Fraser.

NOTES AND COMMENTS.

THE opposition in Glasgow to the removal of the Tolbooth Steeple from its present position still continues, the latest protest being that made by the members of the Merchants' House of Glasgow, the resolution in favour of which was, however, carried only by a majority of ten to six. The most interesting part of the proceedings was the speech of Mr. P. D. Ridge Beedle, who, in moving the resolution, said that while Glasgow was a city of more than 1,500 years old, and was in the Middle Ages a place of considerable importance, yet nearly all strangers who came to the city and, he was ashamed to say, also most of their own citizens looked upon Glasgow as exclusively a modern and industrial centre entirely devoid of historical interest. The reason for that was to be found in the fact that with the exception of the Cathedral and the Tolbooth Steeple there was an entire absence of ancient monuments in the city. Before the war people went in thousands to the Plantin Museum in Antwerp to see the workshop of a printer of olden times, and to Frankfort to see the birthplace of Goethe, but they in Glasgow had destroyed their old college buildings where there might have been seen under one roof the place where the Foulis Brothers produced the most celebrated edition of the classics ever published; the lecture-room where Adam Smith, who had a far greater influence on the development of the world than Goethe, had taught his students; and the place where James Watt perfected the steam engine and thereby revolutionised the world. Had their old buildings and monuments not been swept away, Glasgow to-day would have been recognised as one of the most interesting and picturesque cities in Europe. Like a spendthrift who had run through a rich inheritance, they were met that day to try to save the last remnant of what they formerly possessed. Referring to the proposal to transplant the steeple, Mr. Ridge Beedle said old buildings and monuments derived most of their interest and all their prestige from the fact that they stood unmoved on the sites on which they were erected centuries before. They appealed to the imagination by their display of permanence as contrasted with the changefulness and vicissitudes of our lives. What should be done was to turn the steeple and the buildings adjacent to it, which should be erected in the ancient Tolbooth style, into a museum.

The enthusiastic advocates of British forestry are endeavouring to make capital out of the present war-disturbed conditions of timber supply. They ask, for example, is it not time that a decision should be arrived at as to the percentage of the available plantable land in the country which should be maintained under woods in the interests of the community as a whole? There are many keen planting proprietors in the country. It is known—the various Forestry Commissions, appointed at intervals by the Government of the day, have dealt fully with the subject—that there are several million acres of plantable land which could be made to produce a proportion of the materials now imported. Incidentally, the woods would also give rise to flourishing industries, such as pulp mills, furniture and toy factories, and the thousand and one manufactured articles which we now import, affording employment to a considerable population. We are quite on the side of afforestation of all plantable land which will not grow anything else but timber, and even which will grow timber more profitably than any other crop, but the timber-farmer has to wait a long time for his crop to mature, and the market that promises him to-day an excellent return for his investment may, when he or his successors are ready to supply, be non-existent. We have ever before us the Forest of Dean. The oaks planted as material for the future "wooden walls of old England," on arriving at maturity, find their purpose fulfilled by steel. Even pit props and pulp may in the distant future, when to-day's seedlings will be usable, be no longer made of wood.

In a lecture at the Midland Institute, Birmingham, Professor Polderman, of Mons, speaking of the reconstruction of Belgium, said the first question that arose was, How were the Belgians to live and dwell after the war? Belgium had seen an orgy of destruction; no earthquake could have been worse. The loss was irretrievable

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and the damage unparalleled. Thirty thousand habitations had been destroyed, and the total material damage in the first thirty-two days of the war was estimated at 250 million pounds. They demanded that all the historical buildings should be rebuilt. The Germans were already making schemes for the reconstruction of Belgium, and had the audacity to send architects to offer their services; but the Belgians insisted upon rebuilding according to the national Flemish style of architecture. Asking where the money was to come from, Professor Polderman said Germany ought to be made to pay for the last tile and brick she had destroyed. But the indemnity would be spread over a number of years, and the people could not wait. Another solution suggested was that the Government should call for a huge international charity loan at 2 per cent. or 3 per cent., which he was sure would be a success.

It is a pretty idea for the Birmingham Parks Committee to establish a garden which will contain eventually all the flowers, trees, and herbs mentioned by Shakespeare. The garden as it is to-day, and as the public will have the opportunity of seeing it at the formal opening in about a month's time—the date yet remains to be fixed—is like that described by Isabella to the Duke in "Measure for Measure"—"a garden circummured with brick." It is oblong in shape, in extent about an acre, and was the old garden and orchard attached to Lightwoods Hall in the days before Birmingham had pushed out its antennæ and embraced the district in suburban folds. The work of converting the place into a Shakespeare garden was begun only at the beginning of the year, and the public, therefore, must not be surprised if the object desired is at present far from attainment. Out of over 200 odd plants, &c., required to represent all the allusions to trees and fruits and flowers and herbs and grasses found in Shakespeare's works, only about sixty or seventy could be moved and established in half the year, and so the public must be content for a time with what is simply an old-fashioned garden. However, there is the nucleus of the collection, and the full complement is only a matter of time.

Architects have sometimes reason to complain of their competitive drawings being delayed in transit, but the experience of Professor Lawrence must be hard to beat. At the Leeds County Court an action was brought by John Lawrence, Professor of Sculpture at the Leeds School of Art, against Messrs. Dean & Dawson, shipping agents, and Messrs. Neale & Wilkinson, foreign agents, of Liverpool, in which the plaintiff claimed £50 as damages in respect of an alleged breach of contract. In the alternative, he claimed from Messrs. Neale & Wilkinson money due under an insurance policy.

In 1912 the public authority of Ottawa invited designs for a memorial to the late King Edward. The plaintiff prepared a design, and also made a model. The defendants undertook to carry the package, which was plainly directed to Mr. Eric Brown, director of the competition, at Ottawa, and the plaintiff also insured the safe and timely delivery of the contents with Messrs. Neale & Wilkinson for £50. The model did not arrive at Ottawa, however, until January 1914, fifteen months after it had been despatched. The competition closed on November 1, 1912, and thus the plaintiff's work and expense were rendered fruitless. Inquiries disclosed that the model was sent to Liverpool, and carried across on the *Megantic*. Instead of being sent on to Ottawa by the Grand Trunk Railway, it was taken to the Customs House at Montreal, and left there for twelve months. It was only through the kindly vigilance of Mr. Eric Brown that it was discovered just as it was about to be destroyed.

The plaintiff, in evidence, said that the winner of the competition had the commission of erecting the memorial, which cost £7,000. The second prize was 1,000 dollars. The model and design represented thirty-two days' work.

The question of liability as between the parties was argued at length, and eventually Mr. T. P. Perks agreed, on behalf of Messrs. Neale & Wilkinson, to a judgment against them for £25 and costs.

FROM the *Irish Times* we have in the language of courtesy a by no means unreasonable claim on behalf of Irish archæology, in an address of the Royal Society of Antiquaries of Ireland to His Excellency the Lord Lieutenant of Ireland. The following is a copy of the address:—

To His Excellency Ivor Churchill, Lord Wimborne, Lord Lieutenant-General and General Governor of Ireland.

MAY IT PLEASE YOUR EXCELLENCY,

We, the President and Council of the Royal Society of Antiquaries of Ireland, desire to offer you in the name of the Society our congratulations on your arrival among us as our Chief Governor and the Representative of our august Patron, His Majesty the King.

Our Society, founded at Kilkenny in 1849 to preserve, examine and illustrate all ancient monuments of the history, language, arts, manners and customs of our country, attracted members from all parts of Ireland and grew to be the most numerous of all the bodies devoted to the study of archæology in the United Kingdom. It received from Queen Victoria in 1869 the honour of being designated a Royal Association, and in 1890 it was authorised to adopt the title which it now bears. His present Majesty was graciously pleased to grant it a Charter of Incorporation in 1912.

During the sixty-five years of its existence the Society has laboured assiduously in the wide field of Irish archæology. Its energies are evidenced chiefly in periodical meetings for discussion, in field visits to the ancient monuments of each province in turn, in publications and in subsidiary researches. Its publications already include sixty volumes and many lesser issues for occasional purposes. Among its eminent workers, to name some only of those who have passed away, were Graves, O'Donovan, Prendergast, Reeves and Wilde, names honoured beyond our shores and remembered in Ireland with respect and affection. They and many other earnest and unselfish colleagues have enabled the Society to carry on with credit an undertaking of national importance, and their joint labours went far to prepare the ground for a sane and vigorous school of Irish archæology.

In one main respect the position of Ireland in archæology differs from that of Great Britain and other countries. The strong hand of Cæsar was never laid upon her; her native arts and institutions were not swept aside by legionary and prefect, nor forced into the imperial mould; no external violence disturbed their gradual mutations throughout many remote centuries. Consequently, the memorials of prehistoric man are more abundant here than in any equal area in Europe. A similar statement may be made regarding our early Christian antiquities, and mediæval remains have survived in great numbers. It is most desirable, therefore, to obtain for Ireland a comprehensive and scientific record of ancient monuments such as is being prepared by the Royal Commissions for England, Scotland and Wales; but this it is recognised is a matter which must be postponed until a more auspicious time.

Meanwhile we hope that under your Excellency's wise and sympathetic administration the interests of our ancient monuments will receive all the protection which the Executive Government can afford in a benevolent exercise of its ordinary powers.

Signed on behalf of the Society,

G. NOBLE COUNT PLUNKETT,
President,

CHARLES MCNEILL,
Hon. Gen. Secretary.

His Excellency, replying, said:—Mr. President and gentlemen, I have been deeply interested in the sentences, compact of thought and knowledge, in which you have

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set before me the wide extent of your Society's activities, and I welcome this occasion for expressing admiration at your successful efforts to throw back into a remoter past the frontiers of Irish history, and to occupy in its name the territories of tradition. You have truly a splendid field of labour, for in this land it would seem that legend lost none of its poetry by translation back into the life from which it sprang. I look forward to acquiring some knowledge of these material evidences of the long period of growth and of the centuries of high Celtic civilisation which cover the land, and to seeing those far-famed monuments which, ranging from the rude crannogs of the lakes and the great stone fortresses of the Western Isles, to graceful round towers and sculptured high crosses, are among the art products of a splendid national isolation. The tower, the cross, and the chapel must surely more than make up for the want of the arch, the column, and the circus, and I can understand the pride of Irishmen in a native art, owing nothing to Greece or Italy, which produced those elaborate wrought croziers and shrines, those jewel-encrusted book covers, and those exquisitely illuminated manuscripts, which, as you make them better known, will increasingly inspire wonder and admiration. With its long list of over 1,100 members, including some who approach in reputation the learned workers of the past referred to in the address, with its energies exerted in the various directions you have indicated, with its growing volume of recorded results inspiring to fresh efforts, and with a field of work which must extend as it is explored, the Royal Society of Antiquaries should have a future as distinguished as its past. I sincerely wish it such a future, and I shall be glad if I can assist the Society in the ways you have pointed out to me, and so pay the debt of gratitude I owe for an address so thoughtful and so kind.

WAR ITEMS.

ARCHITECTS' WAR COMMITTEE.

Advisory Committee.—It is felt that owing to the war there may be architects who are more in need of advice regarding their professional affairs than of any other form of assistance. To meet such cases the Professional Employment Committee has constituted a small Advisory Committee, the members of which are prepared to give applicants the benefit of their personal experience and advice, with a view of finding some solution to the applicants' difficulties. The idea is that of personal service, and the Professional Employment Committee has been fortunate in securing the co-operation of Messrs. Henry T. Hare, F.R.I.B.A., Gerald C. Horsley, F.R.I.B.A., and Paul Waterhouse, F.R.I.B.A., who form the Advisory Committee, and to whom will be referred any applications received by the Professional Employment Committee, of the kind indicated.

Professional Employment in War Time.—The Professional Employment Committee of the Architects' War Committee loses no opportunity of turning to good account any circumstances which may assist it in providing paid work for architects who are in distress owing to the war.

An instance of this occurred when the *Clan Grant* was sunk by the *Emden*, and with her Professor Geddes' collection of drawings *en route* for Madras, to illustrate his lectures on city and town planning.

On hearing of the disaster the Committee at once set a number of architects at work to replace the drawings lost, from Professor Geddes' original notes, and the news that the work was in hand was cabled to him. It seems from a communication recently received from Professor Geddes expressing his appreciation of the work accomplished by all concerned, that the cable crossed his letter asking for the help which had been given already in anticipation. In the meantime the Professor had been carrying on as best he could with Indian plans and such European scraps as he could muster.

He was not only surprised but delighted at the quantity as well as the quality of the exhibits sent out to Madras, where the first Cities and Town Planning Exhibition was held. This exhibition was attended by representatives of most of the sixty-five towns and cities of the Presidency, which roughly compares in population and extent to the United Kingdom. Their leading citizens and professional men, engineers and others, attended, and for the latter there were held practical classes in connection with the improvements in progress. Something of the same kind will be done in Bombay and Calcutta, and in this way the cities are being reached, and in some instances more fully than is the case as yet at home.

Professor Geddes expresses the hope that the assistance which the Committee has rendered to him is but a phase of that wider co-operation which is so desirable towards the renewal of cities, whether those destroyed by war abroad, or those deteriorated in peace at home.

UNIVERSITY COLLEGE, LONDON.

In connection with the work of the Session 1914-15, the following awards have been made in the School of Architecture at University College:—Department of Town Planning: Lever Prizes in Town Planning—A. G. Wood, H. N. Fisher, and L. H. Shattock; Lever Prizes in Architecture—H. N. Fisher and I. Reicher; Town Planning; Certificate—H. N. Fisher.

THE LATE MR. HENRY D. DAVIS.

Mr. Henry D. Davis, F.R.I.B.A., carried on practice at Finsbury Circus, E.C., as senior partner in the firm of Messrs. Davis & Emanuel, architects and surveyors, since 1870. He retired from the firm in 1898. During that period the following works were carried out under the superintendence of the firm: West London Synagogue, Upper Berkeley Street, W.; City of London School, Victoria Embankment; Portsmouth Grammar School; Thorngate Memorial Hall, Gosport; Concert Pavilion, Clarence Esplanade Pier, Southsea; Stepney Green Synagogue; Spanish and Portuguese Synagogue, Maida Hill; Hendon Jewish Cemetery, Golders Green; various blocks of offices in the City, including those of Messrs. Ashurst, Morris, Crisp & Co.; Imperial Continental Gas Association; London Joint Stock Bank, Wood Street; private residences at Portsmouth and Hampstead; extensive alterations to East Cliff Lodge, Ramsgate, for the late Sir Joseph Sebag-Montefiore, and Castle Hill, Englefield Green, for the late Mr. George C. Raphael; almshouses at Brixton for the Corporation of London, and almshouses in Mile End for Jewish Charities; offices of the Jewish Board of Guardians in Middlesex Street; Yarrow Convalescent Home at Broadstairs; large blocks of workmen's dwellings for the East End Dwellings Company, Ltd., at King's Cross, Bethnal Green, Whitechapel, and Columbia Market; many large warehouses in various parts of London. Mr. Davis was in indifferent health for some years before his death. He died on June 30 last in his seventy-seventh year, and leaves a widow and one daughter.

LONDON COUNTY COUNCIL.

REGULATIONS FOR BUILDINGS OF REINFORCED CONCRETE.

The report of the Building Act Committee on the regulations for the use of reinforced concrete in buildings in the county of London gives the history of the formulation of these regulations as follows:—

On November 21, 1911 (pp. 1170-1 and 1175-88), the Council, under the authority conferred on it by Section 23 of the London County Council (General Powers) Act, 1909, made regulations with respect to the construction of buildings wholly or partly of reinforced concrete. The regulations were prepared after consultation with the Institution of Civil Engineers, the Royal Institute of British Architects, the Surveyors' Institution, the Concrete Institute, and other associations and committees interested in the matter. The regulations, having been made by the Council, were submitted to the Local Government Board for allowance. After prolonged negotiations with the Board a revised draft of the regulations was prepared, and the Council on June 24, 1913 (p. 1499), made regulations in accordance with this draft. The amended regulations were submitted

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to the Board for allowance, and in accordance with the provisions of the Act the four institutions before mentioned were informed of the Council's intention to apply for the allowance of the Board. Further negotiations have taken place with the Board and the institutions, and numerous suggestions for modifications in the regulations have been received. We think that a large number of these suggestions might be adopted, and we have accordingly prepared and now submit a revised set of regulations. The Local Government Board has stated that in its opinion the regulations as now amended might properly be allowed, and the Royal Institute of British Architects has placed on record its opinion of the great value of the regulations to architects not only in London, but throughout the whole of the Empire.

The regulations as now amended are less onerous than those made on June 24, 1913, and more in line with the regulations made on November 21, 1911. If, as the result of experience gained during the next few years, it should be found that alterations are desirable, there should be no difficulty in modifying the regulations.

In addition to the notice required by Section 23 (4) of the Act to be given to the above-mentioned institutions, the Local Government Board desires that, as in the case of by-laws to which Section 184 of the Public Health Act, 1875, applies, notice should be advertised in one or more London newspapers, preferably daily papers, and in one of the technical papers circulating amongst persons professionally or commercially interested or affected. The Board also desires that a copy of the regulations may be deposited for inspection at the offices of the Council for a clear calendar month after the publication of the advertisements and before the submission of the application to the Board for the allowance of the regulations.

If the Council approves the regulations, it will be necessary for them to be confirmed at a subsequent meeting. We recommend:—

(*a*) That the resolution (No. 1*b*) of June 24, 1913 (p. 1499), making regulations with respect to the construction of buildings wholly or partly of reinforced concrete and with respect to the use and composition of reinforced concrete in such construction, and the further resolution (No. 5) of July 1, 1913 (p. 3), confirming the same, be rescinded.

(*b*) That, pursuant to the provisions of Section 23 of the London County Council (General Powers) Act, 1909, regulations with respect to the construction of buildings wholly or partly of reinforced concrete and with respect to the use and composition of reinforced concrete in such construction, be made as follows:—

(*The regulations referred to follow this report.*)

(*c*) That notice be given to the Royal Institute of British Architects, the Surveyors' Institution, the Institution of Civil Engineers, and the Concrete Institute of the Council's intention to apply to the Local Government Board for allowance of the regulations specified in the foregoing resolution (*b*), and that notice be advertised in daily newspapers and technical papers circulating in London.

(*d*) That, on the confirmation of the regulations specified in the foregoing resolution (*b*) and after the expiration of one calendar month from the date of the appearance of the advertisements specified in the foregoing resolution (*c*), the necessary steps be taken to obtain the allowance of the regulations by the Local Government Board, and that the Board be asked to fix a date on which the regulations shall come into force.

At the meeting of the L.C.C. on Tuesday last, the following discussion took place on the report:—

Mr. Bernard Holland (Chairman of the Housing Committee) said the report of the Committee ought to have been brought up in plain and lucid language, so that any member of the Council could understand the effect the regulations would have on the Council's dwellings for the working classes. He wanted also to know whether the regulations would tend to increase the cost of buildings generally.

Major Levita asked if Government buildings in which reinforced concrete was used would be subject to the regulations, or whether they would only apply to civilian builders. He believed the Government would not accept the rules.

Mr. A. T. Taylor declared that the matter was a serious one, but that the regulations applied only to large six, seven, or eight storey buildings. If Mr. Holland thought the regulations were not necessary, he hoped that on the first occasion of the failure of a high building Mr. Holland would be underneath it. Mr. Taylor also reminded the Council that the matter had been under consideration for years by several professional bodies, and said that if the regulations were superfluous these gentlemen would not have wasted their time.

Mr. Dove thought the Council might let the report go through for what it was worth. He did not think the regulations would affect working-class dwellings at all. So far as reinforced-concrete buildings were concerned, the average person knew that the erection was not only under the supervision of an architect, but in the matter of the actual reinforcement also under the supervision of an engineer.

The report of the Committee and the regulations were adopted.

ILLUSTRATIONS.

RHEIMS CATHEDRAL.

OUR illustration is taken from an etching by Mr. Hanslip Fletcher, and is noteworthy not only as the record of an artist's impression, but as a specimen of technique which in our view specially suits the subject.

UNION BANK OF CANADA, WINNIPEG.

THIS example of Mr. Frank Darling's work was amongst those specially mentioned by the President of the Royal Institute of British Architects in his address on the occasion of the presentation of the Royal Gold Medal.

TWO BUNGALOWS, by MR. FRANK PECK, F.R.I.B.A.

A Bungalow on High Ground.

WE enter this bungalow from an entrance straight into a general dining-hall. It is 45 feet 6 inches long and 26 feet wide over all, but with less service accommodation than that previously described.

The walls and chimneys could be appropriately built in brick or concrete and rough cast, with some stone dressings, the woodwork painted white, windows clear leaded squares (not diamonds), and the roof green slates, and it could be most suitably built amidst pastoral scenery hard by a copse or spinney.

A Thames-side Bungalow on Low Ground.

ALTHOUGH but a small matter, a very careful study was made by the architect, the perspective view being worked out simultaneously with the $\frac{1}{8}$-scale elevations, &c., and working plans, from which the small scale plans here shown are reduced.

The first essential point considered was the proposed level of the ground floor above a *possible* local flood level, the failure to appreciate which sufficiently beforehand has led in so many cases to disaster in abnormally wet seasons. It is fixed here at 3 feet above the highest point of the ground.

Considerable space for quite attractive bedroom accommodation results within the simple long roof of one span, from spreading the eaves well out to cover the bay projections and placing the first-floor lavatory and service accommodation along one side of it, providing height as well as light by means of a range of dormer construction, although the rafters are pitched so low as the first-floor level. The symmetrical gabling above the dining-hall bay also helps us.

This bungalow, with the greater "service" accommodation, has a detached staircase hall, is 54 feet long and 25 feet wide over the main walls, out to out (exclusive of bays), and the ground floor is 10 feet high from floor to floor, and attics 9 feet floor to collars.

The walls were intended to be brick partly rough cast, the chimneys red brick, and the woodwork painted white—except the half-timbering—and the glazing in clear leaded squares, the long roof being covered with red flat tiles. The walls might equally well be timber and weather board between the faced brick so far as æsthetic effect is concerned.

It was designed to be "breezy" in effect as well as position.

STEPNEY MUNICIPAL BUILDINGS.

BY an error in the attached label at the exhibition of competition drawings the authorship of the design placed second was attributed in our issue of last week to Mr. W. F. Granger alone, instead of including the name of his partner, Mr. J. R. Leathart.

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FIFTY YEARS OF PALESTINE EXPLORATION.

HIS GRACE THE ARCHBISHOP OF CANTERBURY presided at the fiftieth annual meeting of the Palestine Exploration Fund held, by kind permission of the Society of Antiquaries, in their rooms at Burlington House.

It was with feelings of gratitude and thankfulness to the staff and Committee that to-day, his Grace said, we could look back over a period of fifty years and find unimpaired the initial motives which set the work of Palestine exploration in motion.

They were wise men who, when the Society was first started on June 22, 1865, resolved that the work, the interest of which reached far beyond England alone, should be taken in hand and carried on in the manner and on the lines laid down in three simple rules suggested by the Archbishop of York, who was then the President, and from which, throughout the fifty years, those answerable for the undertakings of the Society had never once swerved.

The first rule was: That whatever was undertaken should be carried out on scientific principles.

The second: That the Society should as a body abstain from controversy.

The third: That it should not be started, nor should it be conducted, as a religious society.

Holy Land and greatly increased our interest by revealing to us the actual position of so many Biblical sites.

In giving a brief account of the work of the Society during the fifty years, Colonel Sir Charles Watson said that some time before it actually came into being the want of some such organisation was already felt, and interest in the subject was started as far back as 1804.

The Holy Land is the seat of three important religions, and the birthplace of two—the Jewish and the Christian—and Mahomedans hold that prayers said at Jerusalem are twenty-five thousand times more efficacious than prayers said anywhere else; and they rank Jerusalem only second to Mecca.

When the need for a fuller knowledge of Palestine arose a Society was founded called "The Palestine Exploration Association," but the first expedition which they sent out was stopped as the country at the time was unsafe. Thinking that as the interests of the Geological Society were identical with their own, the "Association" decided to hand over to that Society their money and their books. But the Geological Society had all the world to attend to and Palestine exploration fell into the background. It was not until 1864 that a real start was given to the work. The Baroness Burdett-Coutts had heard that Jerusalem was sadly in need



APPROACH TO AIN-SHEMS FROM NORTH-EAST. BETHSHEMESH SITE, NOW CALLED REIMEILEH, IN BACKGROUND BEYOND FURTHERMOST GROUP OF OLIVE TREES.

In the early days of its promotion the Fund owed a great deal to two of its prominent members, who brought not merely their scholarship and interest to bear upon the work, but whose personal charm and power attracted others, making them love what they loved themselves, drawing them into the spirit of the work and so spreading the interest to the outside world. To Dean Stanley and Sir George Grove the Palestine Exploration Fund owes a debt of gratitude.

Looking back we see how scant our knowledge of the geography of the Holy Land was in the early days of the reign of Queen Victoria. The maps of Palestine of that period are unreliable and incomplete; unreliable because those who were responsible for them were not satisfied to leave spaces vacant, but they filled in those spaces incorrectly.

One of the first writings to give an impetus to the exploration of the Holy Land was an article by Dean Stanley in the *Quarterly Review* of 1854, which members were recommended to read. The whole character of the country has undergone a vast change during the last fifty years; conditions for the traveller have altered during that time, and he finds it a highway of luxury and comfort, for Palestine is now "roaded" and "railwayed" out of recognition, but we should beware of calling places by their Biblical names until research and excavation have identified them beyond a doubt, and it is always safer to retain the local name in places that may still require investigation, but it is certain that the work of the Palestine Exploration Fund has given us a far more accurate knowledge of the

of good water, and she was anxious that it should be provided. The first step necessary was an accurate survey of the city, and she gave the sum of £500 in order that it might be started.

Sir Charles Wilson, R.E., undertook the work at his own expense. His "Ordnance Survey of Jerusalem" has been of invaluable service to all subsequent work as the one reliable basis on which to start operations.

A meeting was held in the Jerusalem Chamber, Westminster, in 1865, when it was decided to start the Palestine Exploration Fund in the most scientific manner, and the Society was formally inaugurated and subscriptions were called for.

The next step was to make a general superficial survey of the country, and Captain Wilson and Captain Anderson went out for this purpose and also to report on the most likely sites for examination.

They made plans and took photographs, and in a very short time had more useful information about Palestine than had ever hitherto been known.

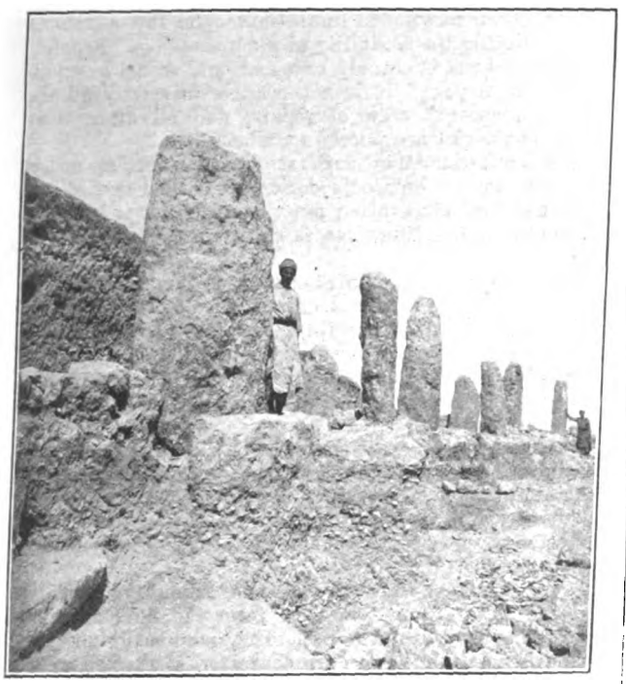
In 1867 Sir Charles Warren started excavating in and around the Holy City. To-day we see a flat Jerusalem, but by sinking shafts and tunnelling the line of the old valleys and their positions were discovered.

The city walls were found to be 80 and in some places 100 feet below the present line; there were the walls of the enclosure made by King Herod, and there is more than the same depth below as is visible above the surface.

The next survey was made by Professor Palmer in the

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desert of the wanderings, and in 1872 the construction of the map of Western Palestine was undertaken. It was started first by Captain Stewart, R.E., and continued by Captain Conder, R.E. In 1874 Lord Kitchener (then



PILLARS OF THE "HIGH PLACE" AT GEZER, WHERE THE WORD GEZER WAS FOUND INSCRIBED IN THREE PLACES.

Lieutenant Kitchener, R.E.) joined the expedition and devoted six years to the work, rendering invaluable services and completing the work under great difficulties. The map was published by the Ordnance Survey Department in 1880.

The Society is now rich in literature concerning the results obtained during these years, and it may safely be said that there is nothing in regard to Palestine which is not treated in the annual.

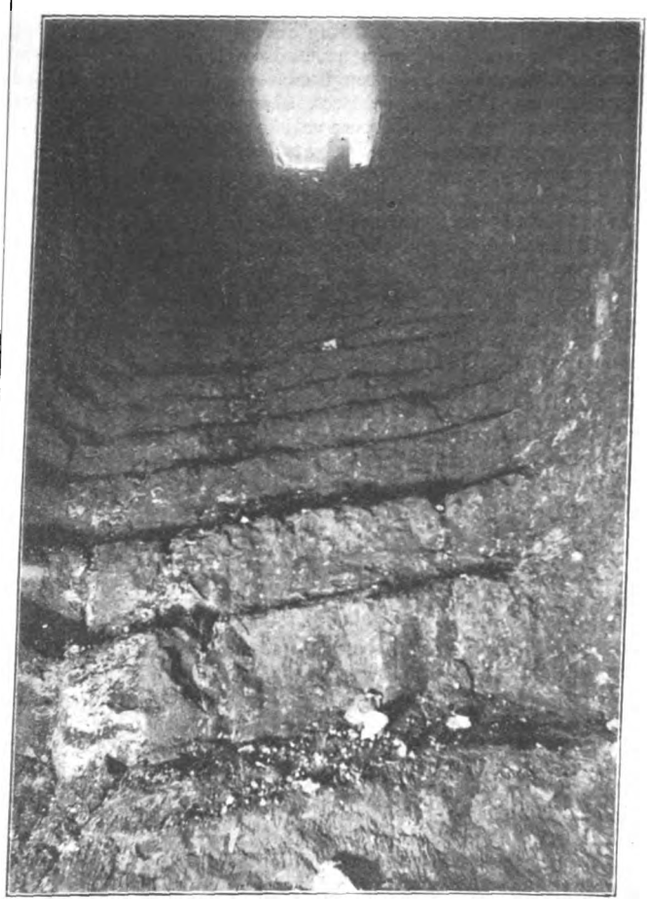


BONES OF SACRIFICED INFANTS FOUND ROUND ALTAR AT GEZER.

Speaking of the "Tells" or mounds, which look like ordinary hills, it appears that beneath this surface is buried city after city which has been destroyed and rebuilt time after time. On one of these "Tells" Professor Flinders Petrie started excavating. Eight to nine cities were discovered, and the site of Tel-el-Hesy proved to be the ancient city of Lachish which Joshua took and destroyed (Joshua x. 32). Professor Petrie being obliged to return to Egypt, Dr. Bliss continued the work.

In excavating near the Pool of Siloam he found 25 feet below the surface the remains of a church built in the time of Theodosius and which must have been destroyed in the sixth century and was thought never to have existed at all. Dr. Bliss was enabled to trace the foundations and make plans of the building.

In 1902 the ancient city of Gezer was excavated by Dr. Macalister. M. Clermont-Ganneau thirty years before had identified the site by the inscription of the name "Gezer,"



THE GREAT WATER-PASSAGE, FACING UPWARDS.

cut several times on the rock of the "High Place." On this site Dr. Macalister found one of the temples of Moloch, and, deposited round the altar, vases containing the bones of infants, the sacrifices of the first-born. The bones showed traces of burning.

Among other discoveries were a palace, built by Simon Maccabaeus, and a remarkable inclined tunnel which led to a water supply. Tradition has it that this tunnel was the source of Noah's flood. It is as large as a modern tube railway and was entirely cut by the stone implements belonging to a time before metal was used. The excavations in the Tel of Ain-Shems (Bethshemesh) have already been dealt with in detail in *The Architect* of June 20, 1913. It is the town to which the Philistines sent the ark drawn by the milch-kine "lowing as they went," and the kine stopped at the great stone in the field of Joshua the Bethshemite and were offered the same day by the men of Bethshemesh in sacrifice to the Lord (I. Samuel vi. 15).

THE Dean of Exeter (Bishop of Marlborough) has undertaken to bear the cost of recasting the treble bell in the Exeter Cathedral peal, recently cracked as the result of an accident. It is proposed to reproduce the inscription on the cracked bell, "Recast 1729," and to add the following: "Again in 1915. Recast in war, I hope to herald peace, when all will love and 'hymns of hatred' cease."

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THE PROTECTION OF ANCIENT BUILDINGS.*

By W. A. FORSYTH, F.R.I.B.A.

THE careful use of an old building ensures its best protection. Municipal and county authorities are frequently the guardians of buildings of historic interest and architectural beauty. The repairs are placed invariably in the hands of the official engineer or surveyor, whose skill in the solution and execution of scientific problems is supposed to fit him for the subtle work of repairing ancient structures. The actual reparations are made by the Works Department, whose experience in highly technical affairs is unquestionable, but whose knowledge of materials and their application for such a purpose is limited and cannot be expected to be otherwise.

Such were the circumstances of a recent case in which one of the Borough Councils in London dealt with the preservation of an historic building in an advanced state of decay. The completed work aroused criticism, and, in the course of discussion, the borough surveyor admitted that the views expressed by an architect, a specialist in this type of work, would have had more satisfactory results and the particular character—historical and æsthetic—of the fabric more carefully preserved, had such process of repair been generally known. Arising from that incident, a suggestion was made that some general notes upon the subject should be laid before the Institution, embodying the views held by the Society for the Protection of Ancient Buildings.

This Society was founded in 1877 by William Morris, and other great devotees of English Art, to check the wholesale destruction of ancient handicraft then being perpetrated upon the churches and other buildings in this country. Restoration was taking the place of repair. Ancient work was wilfully destroyed to promote this method, which was popular and considered desirable at the time. Thenceforward, however, new ideas were established with regard to the preservation of an historic building, so that the traditional interest and educational value should be maintained. The Society has been concerned since its formation with the repair of large numbers of important buildings, and has accumulated much information upon the building processes and materials of our predecessors. Its members have become experienced in the special and varied nature of repairs which become necessary for the preservation of ancient works. The Society is always ready to place this experience at the disposal of public bodies, whose duty it is to preserve old structures from decay.

Recent legislation has enhanced the importance of ancient works. The Ancient Monuments Amendment Act imposes penalties for defacing scheduled structures. The Town Planning Act requires that all municipal lays-out shall be adapted to the retention of an ancient work.

It is not possible to bring the whole or any large part of the subject into review within the limits of this paper. A few general practices can, therefore, only be attempted, and it is hoped that something that is new may reach many whose activities extend to reparations, and who will be induced to apply these recommendations to such structures as town halls, castles, bridges, town walls, gateways, memorials, &c. Old buildings are decreasing in number year by year, so that it is the more important that not only shall they be preserved, but that they shall be cared for and repaired in such a way that their traditional character shall be maintained. The fate of these public possessions frequently rests upon the report of the borough engineer or surveyor. Their value is not always appreciated, and they are dealt with very often by the ordinary process of specification and contract. There are few such works, however, that do not require special knowledge, and it is in the majority of cases essential that a second opinion be obtained, in order that the general treatment be the best for the particular circumstances, for it must be remembered that all examples are different.

All repairs or replacements should be distinctive, yet harmonious, for they form part of the story in stones. If the truth of the story is veiled by attempts at imitative reproduction, the values of the building are lost.

It is sincerely to be hoped that when the time comes to reinstate the Belgian and French cathedrals and town halls, the reparation will be clearly expressed for all time. It is our duty to history unmistakably to express what is Mediæval and what is twentieth-century craftsmanship.

The repair of buildings is one of the processes which is best carried out by a municipal Works Department under experienced supervision. The operations are not fettered by contract sums, time clauses, or the intervention of famous arbitrators; yet, where such a department does not exist, it is desirable to institute some special form of agreement in order to set reasonable limitations upon the operations without affecting the flexibility of the proceedings. Repairs, however, must not be unduly hastened, and should be supervised by an expert. It is not possible to specify all the items in a general work of repair, and all attempts at estimating the cost are purely speculative.

It is important that such structural works as underpinning be not too hurriedly decided upon and carried out. Ample test and observation must be made, for it is known that many a building was safer before than after that operation.

Materials used in repairs should, as far as possible, be new, and local traditional custom should influence their choice and method of building. The use of old materials from other buildings is misleading, and tends to create an undesirable market in such commodities. All old materials, however, such as glass, metal, &c., must be carefully collected and stored.

The tendency to over-repair should carefully be avoided: anticipated defects must not be considered as a great deal of wanton injury will thereby be perpetrated.

Above all it must be remembered that repairs cannot be hastened; slow-setting materials are invariably those of greater lasting quality.

Any additions that may become necessary should be designed in a different manner from the old buildings to which they are to be attached. They need not be unsightly, although possessing a modern character, so that no mystery need be cast upon the structural story of the fabric.

The introduction of heating, lighting, and sanitary works in an ancient structure, while ensuring its use, are actually enhancing the means of protection.

Heating chambers and flues should, if possible, be in detached positions; pipes and other parts must be put in such places as cause the least disturbance, yet not necessarily in the most efficient situations.

All waste and ventilating pipes should upon these occasions be permitted in the interiors of houses under certain conditions. The sanitary authority must have regard to the educational value in the undisturbed character of ancient façades and roofs.

Preliminary investigation cannot be too thoroughly undertaken. Photographs completely showing the outward condition of the fabric, supplemented by plans, elevations, and sections, carefully drawn in freehand, together with descriptive notes of the materials, fractures, inclinations, levels, drains, water-courses, nature of soil, &c., should form part of an exhaustive report and recommendation.

"Tell-tales" should be applied to fractures in masonry or brickwork, in order to ascertain if the indicated movements are active or quiescent. These narrow strips of cement or plaster should be very carefully made; that is to say, the fissure should be filled in flush with the wall, the walls well saturated, and the cement strip covered up and allowed to set slowly. The "tell-tales" should be dated and examined frequently.

Scaffolding.

Scaffolding frequently injures the face of a building, both in course of erection and in the means of fixing. It is, however, a golden rule that all scaffolds should be independent of the old structure around which it is applied; they should be of such a character as to afford the architect easy access to all parts. It is not necessary, therefore, to disturb old facing with new putlog holes. All work liable to injury must be covered up. It should always be remembered that the position and intervals of the staging should be adapted to the levels required. The ends of all poles facing a building should be covered with strawbags as a measure of protection.

Shoring.

Shoring should be left in position as long as possible. Where the repair of an important work is likely to be prolonged, it is necessary to build concrete sills or abutments in the ground, so that the timbers may not be affected by the moisture in the soil. Timbers should be limewashed, in order that they may readily be seen and that they may be preserved.

All cutting out to receive needles should be made good in different materials from the old work, in order to record

* A Paper prepared for the 42nd Annual General Meeting and Conference of the Institution of Municipal and County Engineers at Westminster, June 24, 25 and 26, 1915.

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the disturbance. Shoring must be complete before repairs are commenced.

Supervision.

It is the custom of the Society to recommend that any expert employed should be continually upon the works, and, for such times as he may be absent, that an efficient representative be installed. Supervision is vital in works of this nature. Difficulties are perpetually cropping up, and fresh discoveries arise which require immediate direction from the supervisor. Such constant attendance will also prevent destruction of ancient work, and will tend to check all wastage in labour and material.

Grouting.

Repairs are chiefly required for old walls more than any other features. These have invariably become defective from their faulty bonding, from roof thrusts, or weak foundations. The solidifying of the walls is usually necessary before such operations as underpinning, the insertion of damp courses, the provision of tie-rods, &c., can be commenced.

No greater advance has been made in the repairing processes in recent years than in that of grouting. Many a condemned building has been saved and many a weak structure made sound by this means, and more particularly when used under pressure.

The injurious effects of vibrations upon ancient buildings, especially those having rubble-built walls, due to fast and heavy modern traffic, is a matter of grave importance.

It frequently happens that a fractured rubble wall, a weak footing, an insecure bridge has failed, and can only be repaired by first consolidating the masonry before foundations or other repairs are dealt with. Briefly stated, the method of applying cement grout under pressure is as follows: The operation, like underpinning, must be performed in small sections. All loose, dry mortar and dust is first removed; that which escapes, being raked from the open joints, is blown out. Great care must be taken not to dislodge the aggregate of the wall—that is to say, the rubble, the bricks or stones, as the case may be. Large facing stones should be wedged up.

The parts of the wall thus cleared should then be well saturated, also under pressure, after the face joints are blocked up, usually by wet clay. This moistening will slake the inert properties of ancient lime, and assist the process of solidification. The grout, mixed according to requirements, is then forced by the machine into the wall through a small aperture left for the purpose. The clay joints should be watched, in case the grout escapes prematurely; experience will determine when the particular section is fully grouted.

It is usual to use slurry of one part of cement to one part of sharp, but not too coarse, sand. Frequently neat cement is injected into the fissures. The effect of these injections is to solidify the wall, leaving it in a state reasonably safe for the underpinning, the cutting out of cracks, and bonding in strong material, or other operation.

The clay sealing of the joints is removed after ordinary setting has begun to take place, when it will usually be found that the grout has fully penetrated the wall or structure under treatment. It is then desirable to point the more open joints of the external face to exclude weather. It is not necessary, however, to point internal joints, but to leave them open in order to show that the old materials have been grouted.

Grouting by hand has its limitations, and is dependent upon gravitation. Under mechanical pressure the liquid rises to considerable heights and travels surprising distances.

There are occasions—usually in thick walls—when hydraulic blue lias lime-mortar would be adequate as a grouting medium. Expansions and, in many stones, an unpleasant discolouration are then avoided.

Lime grout is very desirable where walls have not fractured but have hollow places. Lime-mortar built walls have endured a sufficient time for all ordinary purposes. There are many limes which harden to a very great degree. Smeaton used Leicestershire limes in the erection of lighthouses. One of the Derbyshire limeworks has been working continuously for seven hundred years.

A great advantage of this method of repair is that the two faces of a wall are maintained during repairs.

Winchester Cathedral has been saved by grouting. Sir Francis Fox has also grouted and saved historic bridges condemned by county authorities; he has so treated the walls of a large institution when the entire rebuilding was threatening the trustees, whose finances could not bear the strain; he has grouted the walls of an early eighteenth-century London building upon which a dangerous structure notice had been served by a watchful district surveyor, who, after testing the repaired house, accepted the process for the more customary one of demolition.

Grouting would materially have contributed to the retention of Boswell's House in Great Queen Street. The demolition of this interesting building is a very serious loss to students of architecture. It was by no means beyond repair, and was a valuable example of early design in street fronts.

Many a condemned external or party wall is pulled down when grouting and bonding in of new work would have rendered the structure safe.

Ruins.

Public authorities owning ruined or vacant structures are constantly concerned with their repair. In addition to pointing joints in masonry or brickwork, the tops of walls require special care in order to preserve the building and to retain the ruined character. It is important that too much repair be not attempted, or that any work be done in anticipation of defects. Official reparation on these lines has been known to produce the effect of "new" ruins.

The tops of walls, after the necessary preparation, can be covered with asphalte, tar paving, tile or stone paving, &c., and then covered with turf laid in several cut thicknesses, and grass allowed to grow upon the top, as a protection to the paving. By this means the ruined state is retained without detriment to the construction and the old skyline left undisturbed.

The modern granite fence walls in Cornwall are coped with turf, and the stones are bedded in turf and jointed in soil. These walls are extremely durable and picturesque. Sometimes a thin projecting slab is introduced below the turf top to throw off water. Similar treatment is applicable to old walls where the materials are loose, and especially to old exposed foundations marking the lines of a destroyed castle. Too much encouragement, however, must not be given to vegetation, especially ivy. All such growths should be kept under control and subordinated to the architectural interest.

Masonry.

The superficial decay of stonework is largely due to atmospheric causes, which are usually more aggressive in the neighbourhood of large towns.

No moulded or carved feature should be on any account reproduced either in stone or any other material. The Society for the Protection of Ancient Buildings has always recommended that badly decayed ashlaring be rebuilt in roofing tiles laid horizontally and rendered in mortar.

The same methods are applicable to brick walls, and it has the great advantage of ensuring the pinning up of the new material where such is not always possible with the insertion of large stones or bricks.

Moulded mullions, stringcourses, drip-stones, or other features can easily be repaired by tiles laid in lime-mortar and roughly shaped to follow the feature under repair.

Tile-built repairs involve a minimum of disturbance to old sound work in the preparation of a decayed wall.

The process ensures a definite bonding of new to old work. The original walling must be well saturated and cleaned, and the new insertions must be allowed to take a natural course in setting, receiving sufficient protection from heat, frosts, and winds. The mortar should preferably be composed of one part of blue lias lime and four parts of coarse, clean, sharp sand in most cases.

Æsthetic circumstances will determine how far the tile-work shall be hidden by the mortar, but a proportion of exposed red material will invariably add to the pleasing effect of the building and indicate the repairs.

When a weak wall cannot be grouted, and it is only possible to repair by bonding in new material, it is important that the more interesting face be retained at the expense of the less valuable.

Rubble facing which has become loose should be repaired by re-using the old stones or flints, cleaning and mixing them with lias lime-mortar stiffened by a small proportion of cement, and the whole laid in and punned up to a shutter board after the manner of concrete building.

In less decayed rubble facing the loose members may be reset and pinned in with a roofing tile. This was a Mediæval practice.

In the repair of masonry and brickwork reinforced concrete can be structurally used with advantage in footings,

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floors, and lintols. The proportion of steel to concrete must not be unduly large, but sufficient for taking up tensile strains. The metal must be well covered by the concrete for preservative reasons.

Wrought iron let into exposed stonework should be seldom used owing to the tendency of rust to split the masonry; iron guard bars or saddle bars can have gunmetal or bronze sockets let into the walling.

Machine-made pressed bricks should not be employed when they have to be plastered; ordinary hand-made stocks or wirecuts are best for this purpose.

For excluding dampness from a building it is most desirable that stone copings of gables and parapets be taken off and reset upon a slate or other efficient dampcourse. Stone window sills should receive similar treatment when opportunity permits.

A common practice in repairing stone facing in a partial state of decay is the application of preservative solutions. These are mainly patent processes, the uses of which require careful preliminary investigation, especially in testing samples of stone. It is important that the expanding action of frost be avoided, so that in the main all these methods should only be applied in reliable weather and when the work to be treated is quite dry.

One of the simplest and in many ways the best process is that of limewashing. This treatment has been applied to the Cloisters at Westminster Abbey for some years by Professor Lethaby. Here the remains of the original Reigate firestone which were fast perishing have been arrested by the application of several coats of Barrow hydraulic lime slaked in boiling water and laid on with brushes. This means was adopted after repeated trials of other processes, and it is found that the limewash has arrested the decay, and is indeed becoming a structural part of the old masonry by the combined action of the old and new limes. This is substantially a development of a Mediæval practice of coating stonework with thin washes or coats of lime.

Another very interesting example of the repair of stonework by the application of preservative solution is the York Water Gate, Adelphi, London. In this case Baryta water was the medium. Any members whose interests in this subject will induce them to visit this old building will see the excellent results which have been achieved by the architect to the London County Council. The following information is quoted from the report of 1912 of the Society for the Protection of Ancient Buildings: Two hundredweights of loose dirt and sooty deposit were removed by brushing; there yet remained a bituminous deposit and some stalactite features in the less-exposed places. These latter being impenetrable by Baryta water were removed by a steam jet. Loose mortar was cleared away from joints and crevices, and the Portland masonry was given repeated coats (varying from twelve to thirty) of Baryta water applied by brushes. Joints and crevices were filled up with lias lime-mortar—five to one. The missing parts of dripstones, &c., necessary to throw off water were made out roughly to the original forms in pieces of tiles and mortar dowelled and pinned into the solid stonework, no attempt being made to reproduce the original detail.

A subsequent chemical analysis proved that the Baryta water had entered into combination with the stone to a depth of three-eighths of an inch, one month after the treatment, giving the result of converting the decaying stone into a hard-weathering surface.

Pointing.

It is of the greatest importance first to determine what shall be pointed and what shall be untouched; but the decision may be governed by the extent to which open joints are liable to cause injury to walls and to admit water to the interior. A slightly recessed joint need not be touched; a deeply sunk joint must be pointed.

Great care is required in preparing open joints for new mortar. As a rule any joint which cannot be prepared by raking should never be pointed. No joint should ever be cut or hacked out unless for some special purpose, such as grouting. It is of course of paramount importance that the wall be well saturated before inserting the new mortar; this moisture will energise the inert properties of old lime in the wall and tend to promote a structural combination in the two mortars.

An ancient building should never be pointed in strong cement. Lias limes and sand are quite sufficient and more satisfactory in appearance.

The mortar joints should never be cut with a trowel; the material should be pressed in by the fingers or by a wood tool. A slightly recessed joint has advantages in weathering and appearance over a flush joint. In every case, however, some slight variation from the original mortar joint should be made, and all pointing should follow the accidental lines of bricks and stones.

Roofs.

The repair of roofs is a perpetual claim upon the guardians of old buildings. Repairs, therefore, must be soundly executed.

Timber repairs and reframings should be carried out in situ; there is seldom a real cause for dismantling the beams and rafters. Tiebeams, principals, collars, and rafters should never be discarded until splicing or other means of stiffening have become impossible.

Battens or laths should be repaired or replaced with rent oak, secured with copper or composition nails to the rafters. A pleasing line is thus given to the courses of tiles or small slates in a manner which lacks affectation. Counter-battening laid diagonally is a splendid means of bracing timbers and preserving the framing. It also is convenient for receiving the laths of plastering between rafters. Slating in a general sense does not call for special reference; it is important that the "lap" be sufficient and that the slates be held with copper or composition nails.

Tiling requires very careful attention not only in the method of laying, but in the choice of materials. Failures have taken place in recent years in tiles which have been too hurriedly manufactured. These misfortunes have happened more particularly in machine-made tiles where decomposition or lamination has taken place from atmospheric and other causes. Hand-made tiles, therefore, should always be used in repairing or relaying old roofs, laid upon rent oak laths.

Tiles should have good "camber" both in their length and in the width; capillary attraction is materially reduced and the air spaces assist evaporation, and consequently the duration of the timbers. The bedding of tiling should be avoided upon the sloping faces. It is only permissible where pointing is required, such as to ridges, hips, and verges, and in these instances the pointing mortar should be recessed as far as possible for the sake of appearance.

Tiles should have a good "ring," but no undue importance should be attached to this quality, as the writer has obtained as good a note out of a large flaked portion of a bad machine-made tile as from a sound tile.

Lead roofs and gutters upon ancient buildings should be relaid with cast sheets. When the old defective material is in sufficient quantity and is beyond repair it is economical to recast the sheets at the site and relay them. Lead should never be laid upon oak boarding; the acids in the latter cause decomposition in the metal.

Cast lead is more durable than milled lead.

Flats should be well firred up and deal boarding laid parallel with the falls.

All repairs to lead roofs must be undertaken by an experienced plumber; it is usually found that the local workman is not sufficiently skilled.

Surface Drainage.

Water from roofs should be brought down in cast lead pipes to the ground level. These pipes, although more costly in the first place, will last much longer than iron down pipes, although their external painting be not forgotten. Eaves gutters should also be of cast lead for purposes of durability and appearance.

Old lead pipes and rain-water heads must, however, be repaired where possible. The ancient builders gave great prominence to these features, and designed them with character and importance.

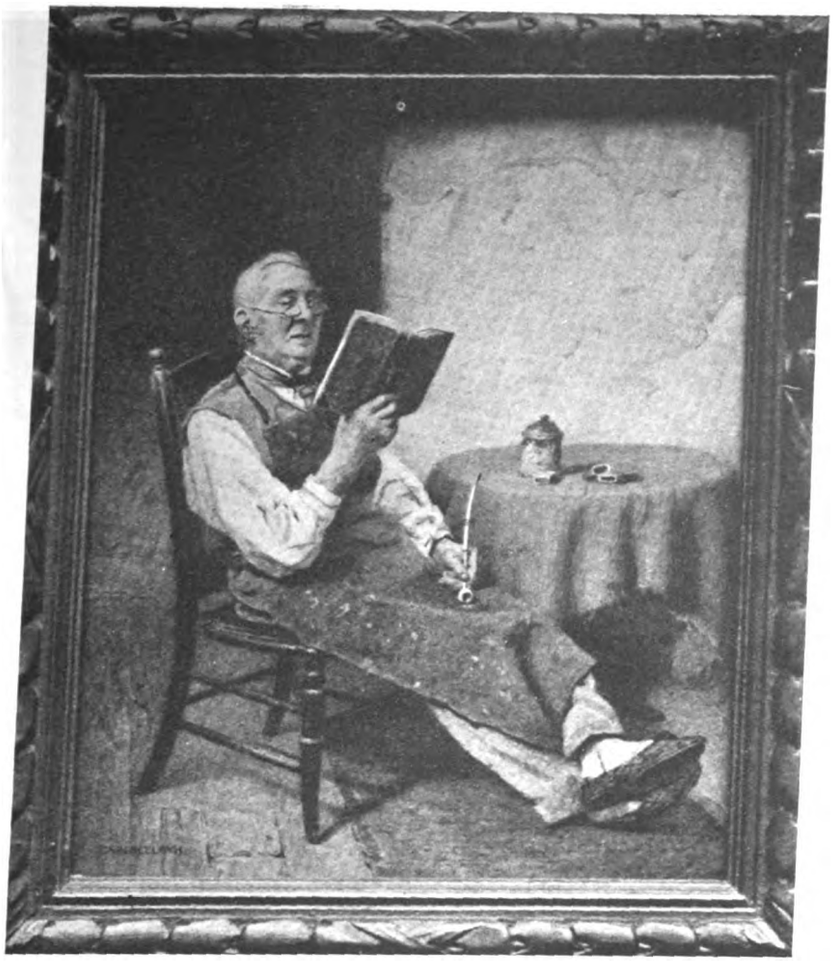
V-shaped eaves gutters of oak or teak have a long life, especially if given an occasional coat of tar on the inside; no other painting is required.

All down pipes should be blocked out clear of the walls, in order that defects may be readily detected. Much damage to buildings is caused by these pipes when fixed close to the walls, as it may be years before a fault is located.

Copper-wire guards should be placed over all outlets in gutters, rain-water heads and pipes. An overflow should be made through parapets which enclose a gutter or lead flat; this will allow the storm water to escape if the main outlet is choked or unequal to the sudden demands of a storm.

From the foot of a down pipe it is generally desirable to conduct the water for some distance from the old building in a surface channel or paved gutter. This paving

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A LOVER OF DICKENS.

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should seldom be less than 2 feet wide, and be laid at a level about six inches below the ground-floor line. Stone, bricks, or tiles should be used for the pavings, laid to fall away from the walls towards the gutter or channel. Cement-paved channels are liable to crack and have an undesirable appearance. The concrete receiving the paving should have a light reinforcement of rods and barbed wire in order to assist the joints of the bricks or tiles in any soil movement. It will further prevent the paving sinking away from the walls and admitting water to the footings.

These pavings will tend to reduce soil movements in arresting the penetration of water falling from the eaves or running off the face of the building.

The channels should take the water to untrapped gullies connected to close-jointed drains laid in concrete. These drains should follow the lines of paths, and their course and condition formed to facilitate regular inspection.

Defective drains are a great cause of injury to ancient buildings.

Plastering.

Old plastering, whether on solid walls or on lath, is invariably interesting both for its materials and its substance. Very thin coats were often applied to old external stonework, and have materially contributed to its preservation. Similar coats have caused mural decorations, both coloured and carved, to be preserved for hundreds of years.

Conversely it is generally found that the body plastering in internal positions is of great substance compared with our modern thicknesses, containing great quantities of hair, coarse sand, &c.

The removal of old plastering has often caused walls to admit dampness to a building which was previously dry. The properties of old plastering were well understood, especially in the great days of half-timber construction.

Repairs should be limited to the actual defective parts of a plastered wall or ceiling. It is undesirable to strip large areas in order to produce an even surface. New plastering on old walls requires great care in order to secure adhesion. The walls must be thoroughly cleaned and saturated, and the new plastering, prepared from limes of known condition, should be applied in no more than two coats finished with a wood float. No steel trowel should ever be used, as it causes the new work to produce condensation, it takes very much longer to dry, and has a tendency to resist colour or wash applied to it. Slow setting must be arranged for; heat and draughts must be excluded, and suitable damp coverings must be hung over the new work in external places. Metal lathing should not be used. All laths should be of rent timber of double or lath-and-a-half substance.

Ornamental ceilings showing signs of failure should be repaired and secured in position. No parts should be allowed to be taken down, and in every case an expert decorative plasterer should be employed.

Floors.

The effects of using a building are seen more in the floors than perhaps in other parts. Yet it is important that floors be thoroughly examined before being rejected.

Uneven or worn pavings can be taken up and relaid upon a suitable bed of concrete and an underbed of broken brick or similar absorbent material to reduce condensation. In very damp soils a quantity of agricultural drain pipes is essential.

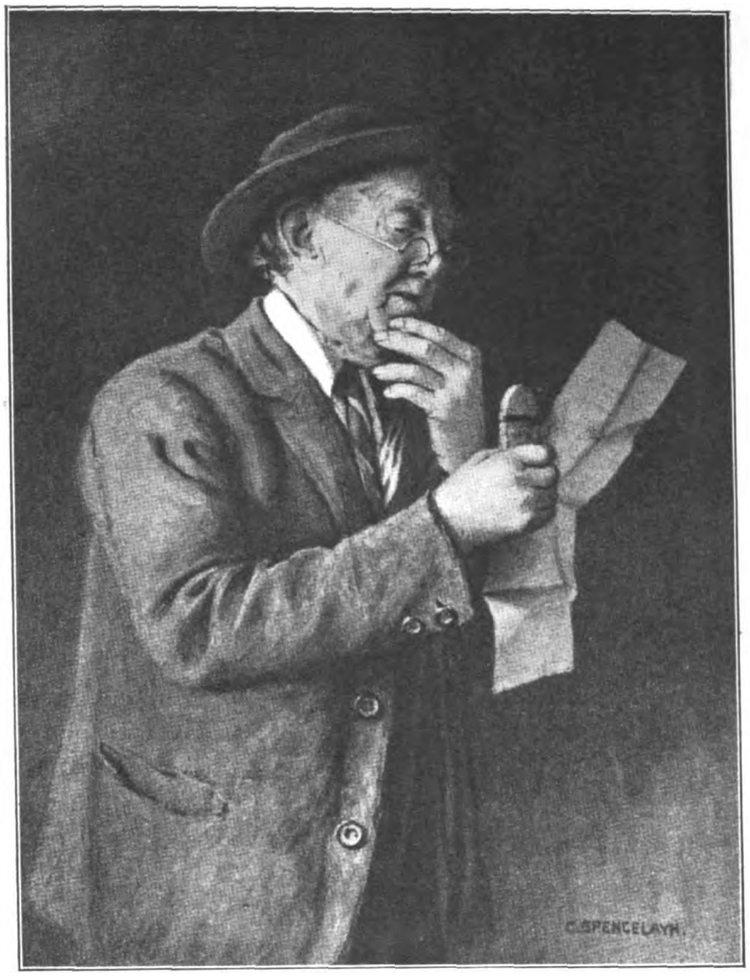
Any making up of materials should be done in such a way as to be readily seen.

When a wood floor has old wide boards in good condition they should be carefully covered up and protected during general repairs. No attempt should be made to imitate them in laying new boards which, if such is the case, should declare their imported origin.

Dry rot, when discovered in any woodwork, should be entirely removed. The surrounding walls should be thoroughly disinfected after the growths have been cut out of mortar joints and crevices.

In all works of repair it is important that complete

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THE SUMMONS.

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records be kept. The original report, including notes, measurements, photographs, and sketches; more photographs and an account of the work during progress, and finally a statement of cost, should all be carefully compiled and retained for future reference. In more interesting cases these reports should be published and facilities granted to students and others whose interests lie in the building arts of past ages.

In submitting these notes it is only necessary to add that they have been kept in general terms. No attempt is made to refer in detail to the many small and important points to be considered in connection with the numerous materials or their application.

It is hoped, however, that sufficient has been written to remind your members of the fact that the preservation of ancient buildings is a specialised branch of an architect's work, and should not lightly be undertaken as ordinary building procedure. The energies of the Society for the Protection of Ancient Buildings are entirely devoted to this work, and their services are always at the disposal of municipal and other corporate bodies in the promotion of important works of repair.

ART IN LONDON.

THE ROYAL SOCIETY OF MINIATURE PAINTERS.

IN the twentieth annual exhibition of the productions of this well-known Society, at the Modern Gallery in New Bond Street, there is but little compelling work, though there is no deficiency of what is ordinarily good. The President, Mr. Alyn Williams, shows virility and knowledge in his one contribution, "A Disciple." Of the Vice-Presidents' work, we can particularly commend Miss Florence White's portrait of Commodore Tyrwhitt, while Miss Hepburn-Edmunds introduces too much purple into the flesh tones. Mrs. Hinchley's palette for flesh tones is dirty, and "After the Dazzle of Day is Gone" is not an altogether satisfactory style of technique for miniature-painting; this, too, may be predicted of Miss Gottschalk's "Cave of Imagination," and also of Mr. Chris Adams' contributions, the latter being in no sense pleasing work. Miss Florence Bennett deserves notice for "A Portrait," and for its well-toned background; pictorially the latter is much better than Mrs. Bell's portrait of Lieut. Farrar, which otherwise greatly excels as a work of artistic quality. In some other work by Mrs. Bell she paints in the hair as though it were a plaster surface, but "Michael Bell" is a prettily portrayed baby. Some of the baby portaits seem to have attracted special efforts on the part of the artist, Mrs. Macdonald's best work being "Ours." Miss Power's work is of an uncertain quality, the colour and brushwork showing themselves poor, while her ability for modelling is apparent. This poorness of colour is noticeable, too, in the work of Misses Swayne, Carver, Scott, and Norriss, though the last-mentioned understands pose.

Mr. Burnand shows good brushwork in his portrait of Viscountess Midleton; and Count Grixoni's miniatures present knowledgeable treatment, particular notice being due to his portrait of the Rev. Dr. Lyttelton for its good modelling and for the artistic subdual of the scarlet gown. Miss Hadden merits attention for her correct sympathetic technique and good local colouring; her work may stand as an example to many other self-styled miniaturists. We regard the best work in the exhibition as being shown by Mr. Charles Spencelayh in "A Lover of Dickens" and "The Summons"; these are excellent in pose, chiaroscuro, colour, and technique. Miss Thomson's work shows the use of a knowledgeable brush, particularly in Nos. 67 and 68. Miss Webb's "Sea Urchins" charmed us, and Miss Janet Robertson's portraits exhibit sympatica in their mode of rendering. Miss Alice James is truly an artist, and a word of high praise is due to Miss Conder for "Gran." Mrs. Young's dogs, too, deserve notice, as indeed does the work of other artists, but space fails.

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WAS THE ANGLO-SAXON AN ARTIST?

A HIGHLY interesting address on the above controversial subject was given by Professor G. Baldwin Brown, M.A., Hon. A.R.I.B.A., Professor of Fine Art in the University of Edinburgh, at the last meeting of the Royal Archæological Institute, held in the apartments of the Society of Antiquaries, Burlington House, W.

In his opening remarks the lecturer said that many of our countrypeople fall unconsciously into the pose of the ancient Romans, who affected to despise the practise of the fine arts, and deemed it more dignified to pay the foreigner, the hungry Greekling of Juvenal, to produce for them whatever in this line might be desired. These people ignore the possibility of any effective artistic operations on the part of the British-born. With others of our fellow-citizens the same peculiarity shows itself in a different form. They do not despise the practice of the fine arts, but on the contrary glorify it, while at the same time they refuse to credit their countrymen, past or present, with any special ability in this department, or, if they are driven to admit ability, they confine it to the Celtic element in our population.

With both parties it is almost an article of faith that anything conspicuously good in art that is found in Britain must in some way or another have come from abroad. This is especially the case in regard to the Anglo-Saxon region and period. The noble early stone carving of Northumbria, ascribed by many to the seventh century, is put down to supposed foreign workmen brought over by the wealthy and energetic Wilfrid. Irish calligraphists have been assumed as the illuminators of the Gospels of Lindisfarne. The beautiful embossed silver work on the Ormside bowl at York is attributed to Alexandria. In an earlier period the fine disc-shaped inlaid brooches so common in Kent have been suspected of a Frankish provenance; at a later date the gold and enamel work of the "Alfred" Jewel, and the exquisite needlework of the embroideries found in Cuthbert's coffin at Durham are called by "that blessed word" Byzantine. It is the fact, however, that in the case of most of these masterpieces, together with the rest of the artistic products of which they are only the finest examples, there exists substantial evidence that they are not of outland origin, but are the productions of homestaying Anglo-Saxon craftsmen.

The question is not one of artistic excellence, for this is indisputable, but of origin. How far can it be proved that these products are the work of the Anglo-Saxon craftsman, and not rather imported objects, or the outcome of the skilled operations of foreigners settled in the land? The object of Professor Baldwin Brown's paper was to attempt to supply such proof as exists that it was in the main a vernacular art and not an exotic.

In the later Anglo-Saxon period of the tenth and eleventh centuries this country was evidently rich to a notable extent in works of ecclesiastical art. There is evidence of this in a remarkable passage by William of Poitiers, who was chaplain to William the Conqueror, and wrote soon after the Conquest, in which he celebrates the splendid gifts that the Conqueror offered from the spoil of England to the churches and monasteries of the Duchy and of other parts of the Continent. Were these objects of native fabrication, or were they imported in the first instance from the Continent? William of Poitiers evidently regards the treasures as indigenous products, but he also uses expressions that might be quoted in favour of a theory of importation.

The influence of the art of the Rhineland and of Saxony on our own art of the pre-Conquest period is an established fact. Several of the characteristic forms of later Anglo-Saxon architecture, such as the windows divided by a mid-wall shaft and the pilaster strips, were imported across the North Sea. It does not by any means follow that transmarine craftsmen settled in this country or merchant importers were in the main responsible for the various treasures of art with which this island was in the later Saxon period so well supplied. This can be tested in the case of one particular form of art, specially noticed in the passage from William of Poitiers, fine needlework.

In the centuries immediately following the Conquest English embroidery was not only abundant but was prized as of especial excellence. It is possible to follow the history of English needlework backwards from that date for three centuries and more, finding evidence almost in each generation not only for the existence in the country of fine specimens of the art, but of English or Anglo-Saxon men and women engaged as professionals or enthusiastic amateurs upon the production of these. We are brought back in this way to the time of Dunstan, who in the last half of the tenth century designed embroideries for a noble lady whom he visited while she was plying her needle with her workwomen about her. And, finally, to the early part of the tenth century when (as we are told by William of Malmesbury) Edward the Elder brought up his daughters to work with the distaff and the needle. There is strong documentary presumption of a native origin for the famous stole and maniple at Durham, found in the coffin of St. Cuthbert, which were executed about 910 to the order of the Queen of Edward the Elder. This presumption becomes an absolute certainty when we note that the inscription embroidered on them, that fixes their date and indicates their provenance, is written with the use of the Anglo-Saxon *th* which no continental craftsman would employ.

If the Durham stole and maniple be accepted as of native workmanship and design they carry with them at any rate a good proportion of the artistic products with which the England of the later Anglo-Saxon period was so well endowed. If work of such superlative excellence could be achieved in one department there seems no reason to doubt the capacity of the native craftsman to execute fine metalwork, carvings in bone and ivory, paintings on parchment, and other artistic objects of a quality equal to anything produced at the time abroad.

The native origin of the MS. illumination of the tenth and eleventh centuries may be taken for granted. In the case of the craft of the goldsmith we have the same sort of evidence as in that of embroidery to the effect that, as Anglo-Saxon or English work, it was highly esteemed on the Continent. The so-called "Alfred" jewel, which may date a generation earlier than the embroideries of St. Cuthbert, is one of the three more or less datable examples of fine gold work of the ninth century inscribed with the names of English royal personages that must have originated in Anglo-Saxondom, though it is conceivable that they were the work of naturalised foreigners.

If we transfer our attention from the later Anglo-Saxon period to that which immediately succeeded the Teutonic settlement of the land we find ourselves again in the presence of artistic production on a considerable scale, about which there is naturally a presumption of native origin, though certain competent archæologists have preferred the hypothesis of foreign importation. The prevailing opinion is that any country which was permanently or for a time settled by one of the Teutonic tribes fabricated its arms, implements, personal ornaments, and other portable objects for itself, following the generic pattern but stamping on its own products a certain independent character. That all districts were supplied from one or more prolific centres of manufacture in Italy, Byzantium, or the Rhineland is a theory now held only by a few. The specific differences between the products of one district and those of another really preclude any theory of the kind. For example, almost exclusively found in Anglo-Saxon cemeteries are the particular kind of brooch called the "saucer fibula" and the "sleeve clasps," the latter being indeed peculiar to certain districts radiating from Cambridge.

The theory of native fabrication for this tomb furniture does not perhaps directly affect the question "Was the Anglo-Saxon an artist?" for the products are not necessarily works of art. Anglo-Saxon, or more generally Teutonic, products of the pagan period of the migrations may fail to satisfy the æsthetic critic of to-day in certain qualities of design. In important respects they are inferior to late-Celtic products, especially in the feeling for line and contrast of plain with enriched passages. As a rule in Anglo-Saxon decoration the effect is at best an all-over effect, of a type common everywhere in barbaric design, where there is no room for the vacant space. If we grant this limitation, however, we can find considerable merit in the enriched surfaces of the inlaid jewels of the Kentish type, though, when all is said, it must be admitted that, while the design of the pagan Anglo-Saxon craftsman maintains a fair artistic standard, it can claim no speculative degree of merit.

The strongest side of his work is its technique. A workmanlike handling of the various processes of casting, chasing, soldering, gem-cutting, and the rest, is almost everywhere in evidence, and minute finish, in which there is at the same time nothing meticulous, proves that eyes were precise and fingers delicate. The fine technical qualities apparent in the late Durham embroideries are fully in evidence in the earlier pagan period. It must here be emphasised that from the mediæval point of view technique, the precise and cunning handling of materials, is by no

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means mechanical, but is the creation of beauty through the relation of parts, the distribution of colours, and the diversities of surface we call texture. In this sense the fine technique of the early Anglo-Saxon bronze chaser or goldsmith is an artistic quality, and its presence in our native work, such as the well-known Kentish inlaid jewels, helps to answer in the affirmative the question of this paper.

Following closely on the pagan period, and, indeed, overlapping it, we have a particularly interesting phase of Anglo-Saxon art in the department of coinage. The early Anglo-Saxon coins, called sceattas, dating from the last part of the sixth century to the latter half of the eighth, present the native artist in a new and very interesting light. He is here par excellence the designee, giving rein to his fancy in copious and varied devices, often of a most quaint and spirited kind. Offa's coins have been pronounced artistically superior to any coins subsequently struck in this country before the reign of Henry VII. With comparatively few exceptions, the moneyers' names are English.

The most important artistic works of the Anglo-Saxon period are of Northumbrian origin, and are commonly ascribed to the last quarter of the seventh century. They are the illuminated manuscript known as the "Gospels of Lindisfarne" or the "Durham book," and the Ruthwell and Bewcastle crosses, while there are good reasons for adding to these the Ormside bowl at York.

This manuscript is the finest example in existence, save one, of the Irish style in calligraphy, and is surpassed by the Book of Kells alone. At the end of it there is a note by a scribe of the tenth century to the effect that it was written by Eadfrith, the Anglo-Saxon bishop of Lindisfarne, who is known to have filled the see from 698 to 721. No one can turn over the pages of this manuscript without assuring himself that text and ornament interpenetrate so intimately that they must necessarily be the work of the same hand or hands. If the evidence, which is undoubtedly strong, be credited, then in this Anglo-Saxon bishop we have an artist who in design and execution is fully equal to the most accomplished masters in MS. illumination of whom there is record. It is a convincing proof that great works of art were possible in the Northumbria of the latter part of the seventh century. This fact is of significance in connection with the disputed question of the date and authorship of the Ruthwell and Bewcastle Crosses. The nine-line inscription on the latter, the six uppermost lines of which are almost completely legible, furnishes a very strong evidence indeed of the Anglian origin of the Cross as well as of a date for it in the seventh century, and must be set against the *a priori* unlikelihood that an Anglican sculptor could accomplish carved work of the kind. There are many other indications leading to the same view as to the two crosses being native workmanship.

Professor Baldwin Brown thus concluded a clever and closely reasoned address of which the above is a résumé: "Several points have been touched upon in this paper in which contradictory opinions may conscientiously be held, on which, in our present state of knowledge, a definite judgment can hardly yet be formed. There remains, however, a sufficient body of evidence, the validity of which cannot reasonably be doubted, that goes to establish the general contention of the paper that the Anglo-Saxon possessed an artistic capacity quite on a level with that of his continental contemporaries, and that there is no real foundation for the popular prejudice which regards him as a rather clumsy boorish creature who had to subsidise the needy foreigner to do his artistic work for him. It may be conceded, and the concession is really an unreasonably large one, that all doubtful cases are to be given against the Anglo-Saxon and in favour of the foreigner. There still remain as unquestionably indigenous the coins, that cover almost the whole Anglo-Saxon period, the tomb furniture, including the Kentish inlaid jewels of the pagan epoch, the ring of Ethelswith Queen of Mercia, and the Durham embroideries of a later time, not to mention the characteristic Anglo-Saxon work in the ornamented manuscripts, the native origin of which has never been in doubt. If the Gospels of Lindisfarne, in face of the evidence that has been adduced, be handed over to Celtic scribes, it is impossible to withdraw from native Anglian brains and fingers a large share of the responsibility for the Ruthwell and Bewcastle crosses. These are things that "cannot be spoken against." Opinions may differ as to the extent to which these established cases cover and carry with them doubtful examples, but the existence of the established cases is surely sufficient to enable us to return an affirmative answer to the question of the paper, "Was the Anglo-Saxon an artist?"

THE ADEQUACY OF BITUMINOUS ROADS.*

By G. H. JACK, County Surveyor of Herefordshire.

THE subject of bituminous roads has received more attention of late than any other branch of civil engineering; it is therefore not a little surprising that there should still be a good deal of difference of opinion as to the best methods of reconstruction and maintenance.

That there has been a tremendous advance in the making of roads suitable for mechanical traffic goes without saying, and especially is this true in the neighbourhood of large centres of population where the costliness of the work is not so apparent or so keenly felt as in agricultural areas.

Many able contributions on the subject continue to be made by county and district surveyors, the great majority of which treat the matter of bituminous surfaces almost exclusively; consequently a good deal of repetition is unavoidable. There is a general absence of matter dealing with the causes of failure or partial failure, and in my opinion too little stress laid upon those factors which are essential to the life of waterproof surfaces.

It appears to me that for the most part it is not possible to treat such a subject in a general way, for the reason that the conditions vary in every county, in every district, and indeed upon almost every line of road.

A method highly successful under one set of conditions is a failure under another set, so that it is not safe to follow any lead without first becoming fully acquainted with all the factors, favourable and adverse, which exist upon the particular line of road to be dealt with. This brings me at once to the point I wish to emphasise in this paper—viz., the experience as to the behaviour of bituminous surfaces is so varied as to point unmistakably to the fact that efficient and economical road-making and maintenance can only be assured by a very thorough knowledge of local conditions, and a mastery of such important considerations as the stability and drainage of the subsoil upon which the road is constructed. I am convinced that unless new roads rest upon good natural or made foundations the behaviour of any bituminous surface is uncertain and in many cases can only be partially successful.

Nowadays the choice of first-class surfacing materials is really very restricted; there are not more than a half-dozen types which have successfully stood the test imposed by mechanically propelled traffic. The local considerations operating both in favour and against the adoption of any particular material are, however, very numerous and varied. It is widely admitted that tarmac has few rivals as a most successful material, but there are local conditions under which tarmac would most certainly prove a failure.

I am tempted to write at some length upon the interesting and all-important question of foundations, but the subject is worthy of more space than I can on this occasion give to it.

During the last two years sixteen miles of road have been reconstructed in the county of Hereford in preparation for the laying of various kinds of tarred material. The solid rocks of Herefordshire almost entirely belong to the Old Red Sandstone formation, but, in common with most other counties, it is not the solid geology which directly affects the road engineer. The outcrop of the various formations is either so disintegrated as to present large areas of clay and brashy material or is overlaid with glacial or alluvial gravel and clay, and it is upon such material that the majority of our roads are constructed. In Herefordshire the solid rock is usually topped by from one to three feet of clay, which varies considerably in character and in quick succession from compact marl to sandy marl and soft clay of the consistency of putty.

So far as I know there have been few contributions dealing with the subject of subsoils and road foundations. There is very little useful information to be derived from text-books, and what information is given is so meagre and expressed in such general terms as to be useless in practice. It therefore remains for every county and district engineer to investigate and deal with the subsoil difficulties peculiar to his own sphere of influence. It is quite impossible to decide upon what construction will or will not meet the traffic requirements until these initial problems have been closely investigated and solved.

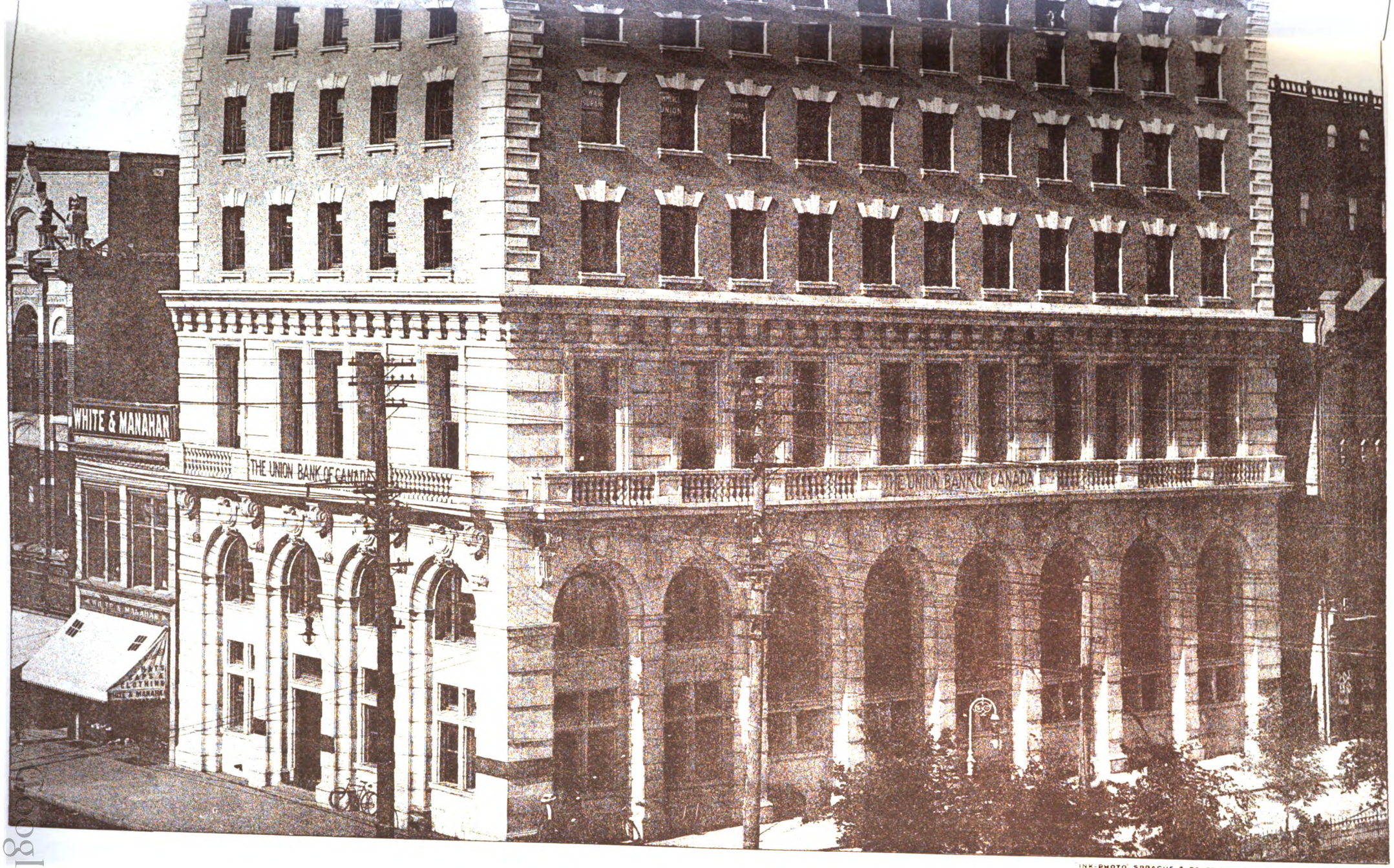
The stability of the natural subsoil varies even on a length of road of 3¼ miles. In some places new foundation material three feet in depth becomes necessary, while in

* A Paper presented at the National Roads Conference.

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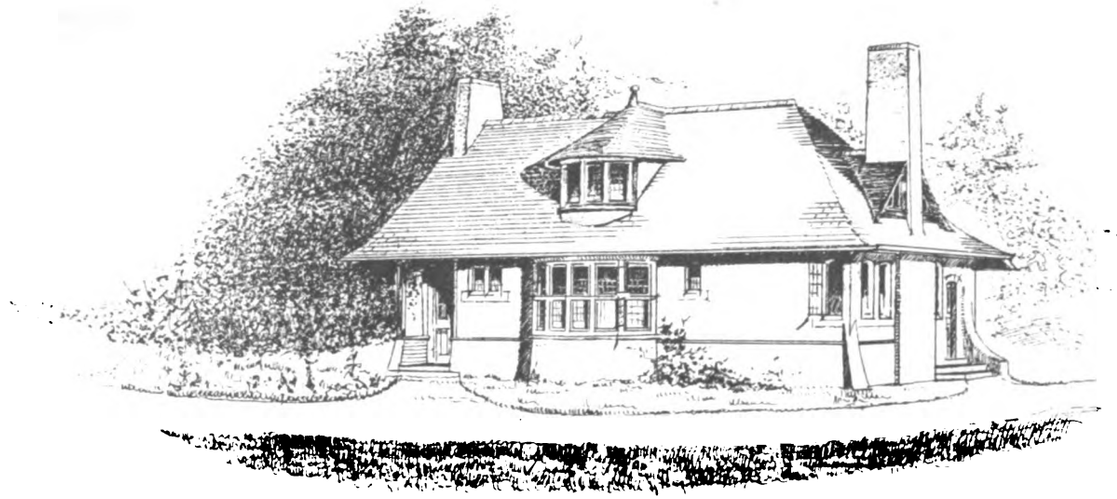
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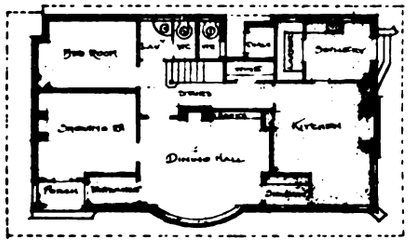
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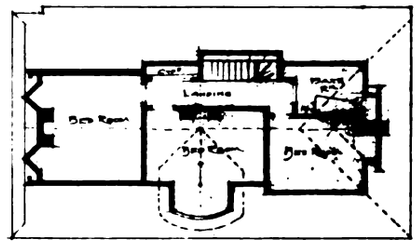


. S.W. Elevation .





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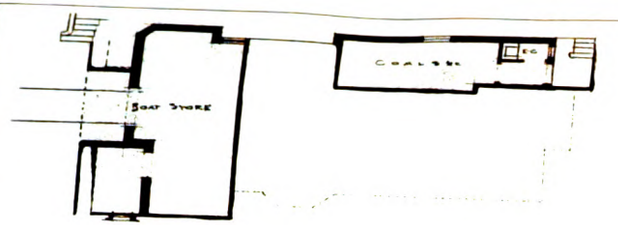


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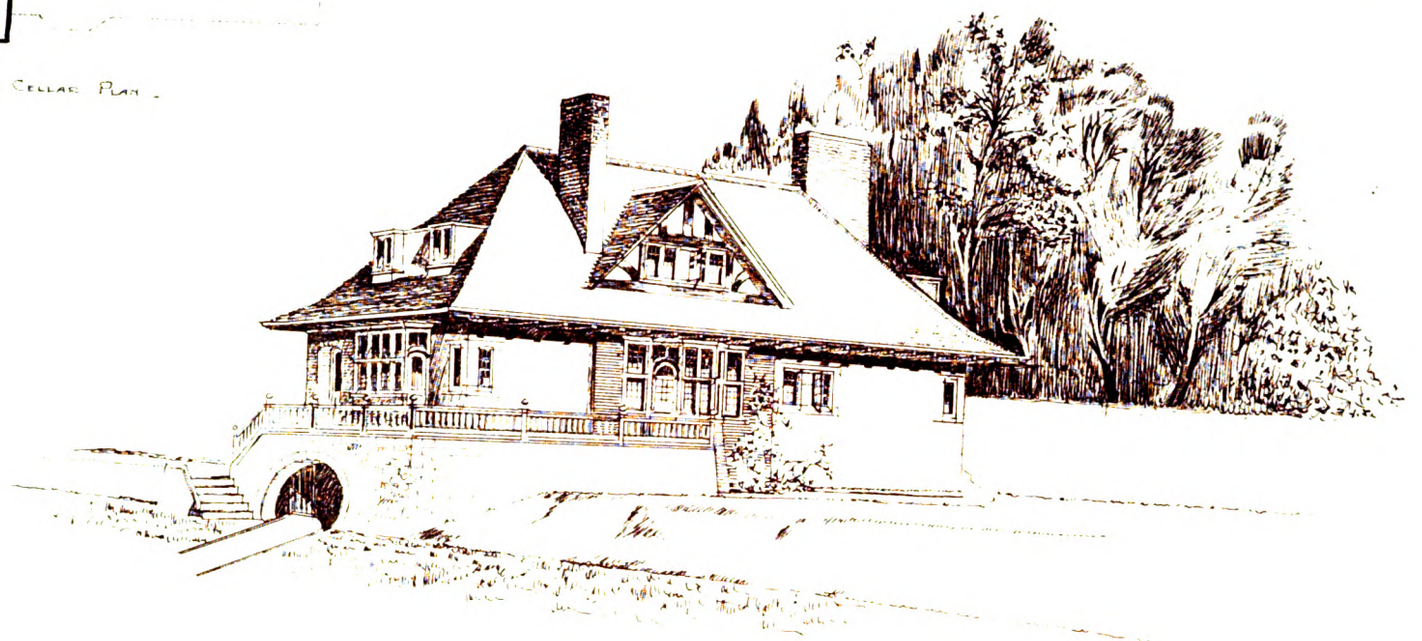
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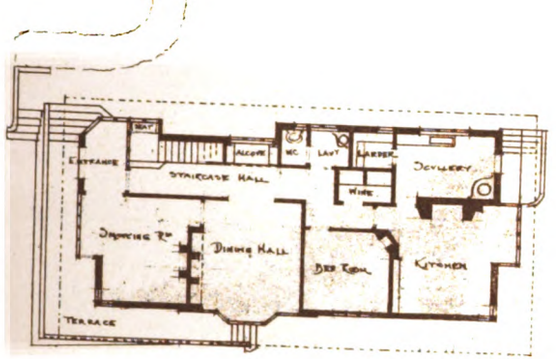
DESIGN FOR BUNGALOW BY MR. FRANK PECK, F.R.I.B.A.

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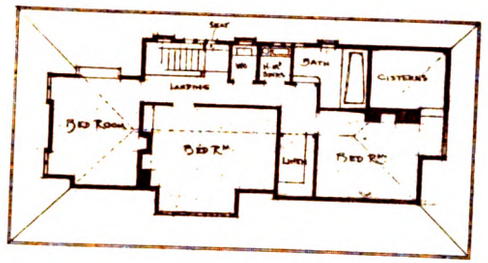


- Cellar Plan -





- Ground Plan -



- First Floor Plan -

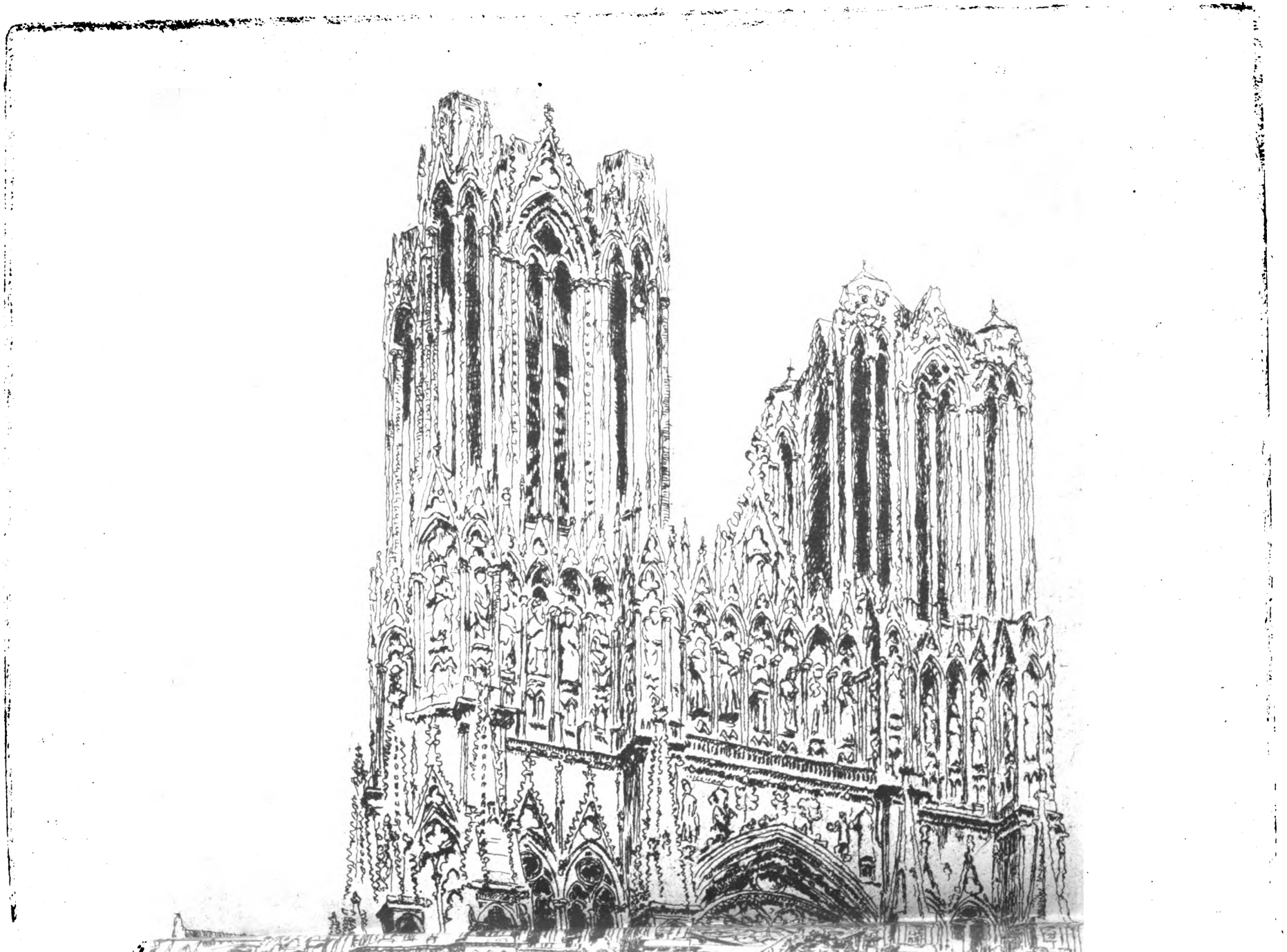
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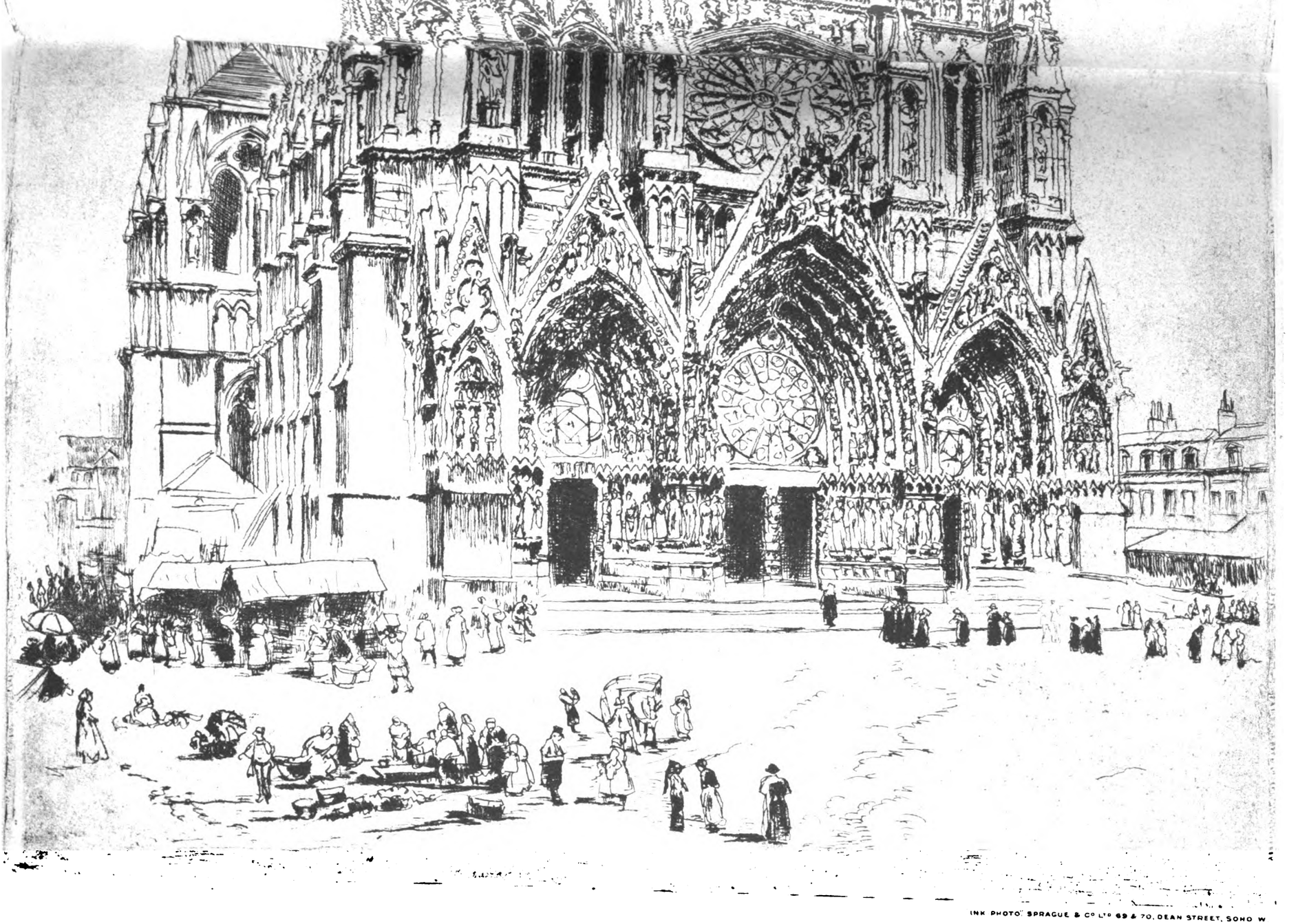
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RHEIMS CATHEDRAL.

From an Etching by Mr HANSLIP FLETCHER.

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others narrow strips adjoining the ditches are the only weak places requiring treatment.

The difficulty of estimating the cost will be apparent. The actual cost of one such length may be of some interest.

	Cost of 3¼ miles of new road average 21 feet wide.											
	Drainage			Foundations		Tons	Surfacing			Tons	Total		
Drainage ...	...	99	15 11	—		—	—			—	99	15 11
Manual labour	...	—		637	14 11	—	200	1	6	—	837	16 1
Materials ...	...			1,828	17 7	8,487	1,596	12	6	3,917	3,425	10 1
Haulage ...	...	—		432	11 6	—	366	16	7	—	799	8 5
Steam rolling	...	—		399	4 1	—	271	0	1	—	670	4 2
Miscellaneous	...	—		79	19 0	—	12	8	5	—	92	7 5
Totals	...	99	15 11	3,378	7 1	8,487	2,446	19	1	3,917	5,925	2 1

Cost of surface dressing £480

I have endeavoured to show that the adequacy of bituminous roads depends to a large extent upon the local conditions affecting the stability of the subsoil and facilities for drainage. There are, of course, other factors inseparable from the nature of the materials themselves and the method employed in applying them. For instances, take the three best-known forms of surfacing—viz., tarmac, tar-macadam, and tar-grouted macadam. Whatever other influences there may be at work, the widely different behaviour of these three forms, provided each is laid on a good foundation, is largely due to the degree of density procurable. In all cases where broken stone or slag is used, whether water or tar bound, it is always noticeable that the quantity of binder taken up by the coating varies considerably, due to the space between the stones being greater in one spot than another. It is quite impossible, therefore, to expect in the case of tar grouting an even distribution of the binder. As a consequence all tar-grouted roads soon show harsh patches, which become loose and troublesome under a moderate traffic.

If the texture of the road varies, the wear must necessarily vary, and although patches of roadway may remain quite good, other and adjacent patches are undoubtedly bad. As soon as this condition arises recourse is usually had to surface tarring, which heals the sores for a time but does not remedy the fundamental defect. It is the same to a much lesser degree with tarred macadam, although still less so when limestone is employed as against granite, for the reason that in the process of rolling the limestone crushes somewhat and thus reduces the spaces between the stones, whereas the granite does not crush and so the spaces remain unless the stone is very efficiently covered with a compound having a high viscosity. Tarred granite roads where the stone is mixed with crude tar are often failures for the reason that the tar does not fill the interstices; the stone becomes dry and the surface soon loose and friable.

In the case of tarmac the interstitial space is reduced to a minimum, partly by reason of the properties of the slag and partly because it crushes slightly under the roller, which gives a hard and compact result; such work is practically waterproof and therefore durable, but unfortunately rather slippery under certain climatic conditions. Slipperiness, however, is an accompaniment of all the best-known surfacing methods; the difficulty, though troublesome, can be surmounted, except, perhaps, upon steep hills.

Another much-discussed trouble is that associated with the appearance of corrugations, particularly noticeable in modern road surfaces. There appears to be very little, if any, vertical displacement upon roads paved with wood or setts, but it is noticeable that after such roads have been subjected to the traffic the lines of the blocks are sometimes pushed into curves obviously by the traffic itself; naturally the displacement of the material, both longitudinally and vertically, is much more noticeable when the road is built up with more or less plastic materials. I have often noticed that the more yielding the binder the more wavy the surface becomes. The corrugations are no doubt partly due to the rolling in the first place, but to a much less extent than the subsequent rolling and pushing action of the traffic. The trouble is certainly not entirely due to the steam rolling, which is proved by the wavy appearance of hand-laid asphalte surfaces. It seems to me that all roads constructed of materials which have not the rigidity of granite setts or wood blocks, or lack the elasticity of such a material as rubber, must develop corrugations as a matter of course.

The wear and tear of roads due to ordinary traffic is eclipsed by the extraordinary punishment inflicted by heavy motors and traction engines carrying illegal weights at excessive speed. When such damage is pointed out and resented the answer given is usually to the effect that if the roads are not strong enough to bear any traffic likely to be brought upon them they ought to be made so. Provided one knew what the weight and speed of the traffic was likely to be, the difficulty in designing new roads would vastly decrease. It is just this uncertain factor which is so perplexing. No one would think of doubling weight and speed upon the railways without materially strengthening the track and bridges at enormous cost; but when our highways are subjected to such usage, for which they were never designed, surprise is expressed in some quarters at the manner in which they rapidly give way under the strain.

I have seen new bituminous roads in this county soon after completion most seriously damaged by engines weighing anything up to 15 tons (though registered as 10 tons) drawing heavy vans, each with one wheel equipped with a badly adjusted brake slipper.

While it would be absurd to infer that commercial traffic upon the roads must be penalised because the existing roads are not designed to carry mechanical traffic, it would be equally fallacious to imagine that old roads can be reconstructed or new roads designed unless fairly accurate data is at hand as to what weight and speed of traffic the roads are to be called upon to sustain. This means that a reasonable limit must of necessity be assumed by those responsible for the design of the roads.

I trust the committee recently appointed by the Local Government Board will be able to make such acceptable recommendations as will both simplify the existing somewhat hazy state of the law and define clearly what traffic (if any) is to be considered illegal.

An effort has been made in Herefordshire to obtain road surfaces superior to waterbound basalt at a reasonable cost. The life of the new roads has yet to be proved. It will be noticed that coal-tar surfaced roads six inches in thickness have been laid at 3*s.* 3*d.* per square yard. The wear apparent after two years is very slight.

Some further particulars in reference to the "Westrumite" section may be of special interest. This material has the advantage of being laid cold. The grouting is done in two operations; the first is by means of very thin material (three parts water to one part asphalte), which penetrates well; the second is very much thicker (one part water to three parts asphalte mixed with one-eighth inch to dust limestone). This forms the sealing coat, which is sprinkled with fine limestone dust. The total thickness of this was eight inches—foundations five inches, surface three inches. The cost per square yard 2*s.* 11½*d.*, of which 1*s.* 9½*d.* is attributable to foundations.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Stepney Municipal Buildings Competition.

SIR,—While thanking you very much for your kind criticism of our premiated design, submitted in the competition for the new Municipal Buildings for Stepney, and reviewed in your last issue of July 2, will you allow us to put on record a protest against a small piece of adverse comment which is founded on a slight misunderstanding on your critic's part? We do *not* imagine that an office 31 feet 6 inches by 16 feet 6 inches can be properly lit from one end only, nor did we propose that it should be lighted entirely by end windows. A comparison of the top-floor plan with that of the first floor will show that the top floor is set back some 7 feet 6 inches above this room, thus allowing for the provision of a clerestory window, which would light well back into the room. I trust you will allow us to vindicate our character as practical men by inserting this letter of explanation.—Yours, &c.,

POYNTER & WENYON.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CUMBERLAND.

Kirkoswald.—C.E. School: addition and alteration. Mr. E. Martindale, architect, Tangier Buildings.

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DEVON.

Paignton.—Isolation Hospital: extension (£2,550).

DURHAM.

Gateshead—All Saints' R.C. School for 624 places.

Spennymoor.—No. 11 Flora Street: addition, for Mr. Longstaff.

Sunderland.—Isolation Hospital: proposed tuberculosis wing.

St. Gabriel's Vicarage, corner of Chester Road and St. Gabriel's Avenue.

ESSEX.

Chelmsford.—House, Swiss Avenue, for Mr. H. Davis.

House, off Springfield Road, for Mr. F. J. Underwood.

Shoebury.—Twelve working-class dwellings, Wakering Road (£2,700). Council surveyor.

Southend-on-Sea.—Tuberculosis hospital. Mr. P. Brockbank, architect, County Chambers, Weston Road.

GLOUCESTERSHIRE.

Bristol.—Ship-repairing workshops, Royal Edward Dock, for Messrs. Charles Hill & Sons.

KENT.

Herne Bay.—Business premises, High Street. Mr. E. T. J. Adams, architect, Market Street.

LANCASHIRE.

Liverpool.—Woolton Road Presbyterian Church, Wavertree.

Rishton.—Proposed Council school for 500 places.

NORTHUMBERLAND.

Earsdon.—Hospital. Messrs. Spiers & Sons, contractors, 95 Bothwell Street, Glasgow.

SOMERSET.

Taunton. — Isolation Hospital: tuberculosis pavilion (£1,755).

STAFFORDSHIRE.

Chase Terrace.—House, Cannock Road, for Mr. W. Arthrell.

Ipstones.—Wesleyan Church, Bottomhouse (£600). Mr. R. T. Longden, architect, St. Edward Street, Leek. Messrs. J. Fielding & Son (of Alton, Staffs), contractors).

Kidsgrove.—Proposed Council school (for 240 boys) and cookery and handicraft Centre.

Penkridge Bank.—Cinema House, near the military camp.

Stafford.—Cottage homes, Stone Road (£2,500), for B.G.

SUFFOLK.

Felixstowe.—Proposed secondary school.

Fritton.—Proposed cottages, for the Mutford and Lothingland R.D.C. Messrs. A. F. Scott & Son, architects, Holborn Hall, London, W.C.

SURREY.

Carshalton.—House, Windborough Road, for Mr. J. Harrison.

The Grove Works, Westcroft: additions, for Messrs. J. Smith & Co.

SUSSEX.

Burgess Hill.—Congregational Sunday school (£1,400).

Uckfield.—Cinema theatre, High Street (£3,000). Mr. E. W. Long, architect, 40 Marlborough Place, Brighton.

WARWICKSHIRE.

Corley.—Post Office, Tamworth Coventry Road: additions. Mr. H. J. Cooper, contractor, The Holloways.

Polesworth.—Two houses, Birchmoor Road, for Mr. J. Hope.

YORKSHIRE.

Batley.—Sub-station, Carlinghow, for the Electricity Department.

Brierley.—Church School: additional fifty places.

Council school for 150 places.

Carleton (Pontefract).—Five houses, for Mr. F. W. Briggs.

Churwell.—Millshaw Leather Works: additions. Mr. T. A. Buttery, architect, 1 Basinghall Square, Leeds.

Doncaster.—House, Doncaster Road. Mr. P. A. Hinchcliffe, A.R.I.B.A., architect, 14 Regent Street, Barnsley.

Howden Clough.—Proposed Council school, for W.R. Education Committee.

Huddersfield.—"Open-air" military hospital (£12,000 to £15,000).

Hull.—Boiler house, Stoneferry, for Messrs. W. Pearson, Ltd.

Eight houses, Marlborough Avenue, for Mr. J. H. F. Osborne.

Sixteen houses, Rustenburg Street, for Mr. Kennington.

Premises, Sculcoates Lane: additions, for Messrs. Mayfield Brothers.

Warehouse, Church Street, for the Hull Drying and Warehouse Company.

Reeth.—Proposed hospital.

Rossington.—Church. Mr. F. N. D. Masters, M.A., architect, Bank Chambers, Scot Lane, Doncaster.

Saddleworth.—School, Castleshaw. Mr. J. Stuart, architect, County Hall, Wakefield.

Thornhill Lees.—Working Men's Club: additions. Mr. W. F. Cave, architect, Halifax Road, Dewsbury.

WALES.

Cardigan.—Shop, the Medical Hall, for Mr. Howell Morgan.

Swansea.—Parish Church, Mumbles: enlargement, &c. (£11,000).

Ynishir.—Ten officials' houses, Wattstown, for the United National Colliery Company. Messrs. Evans, Williams & Evans, architects, Court Chambers, Pontypridd.

SCOTLAND.

Aberdeen.—Robert Gordon's Technical College: School of Fisheries, near the Victoria Bridge (£8,750).

Edinburgh.—Chemical factory, Westfield Road, for Mr. D. McGlashan.

Garvald.—Proposed Police Station, for East Lothian C.C.

Glasgow.—Laundry, Carstairs Street: additions, for Bowie's Laundry, Ltd.

Premises, Nos, 211-13 Sauchiehall Street: alterations, for Messrs. Daly & Co.

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IRELAND.

Newry.—Labourers' cottages (£2,200).

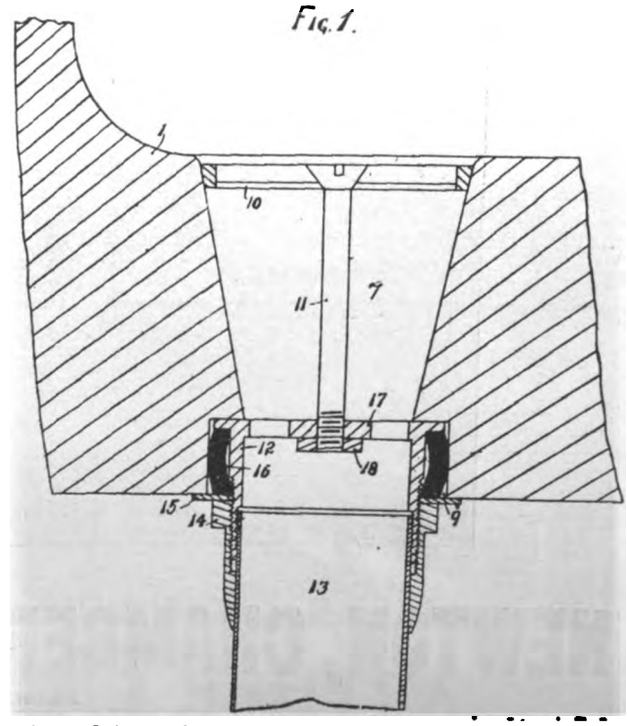
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 14170. June 12, 1914.—Improved Bath. John Shanks, Tubal Works, Barrhead, Renfrewshire.—This invention relates to improvements in baths, the novelty consisting in the formation of a rebate around the outlet for

FIG. 1.



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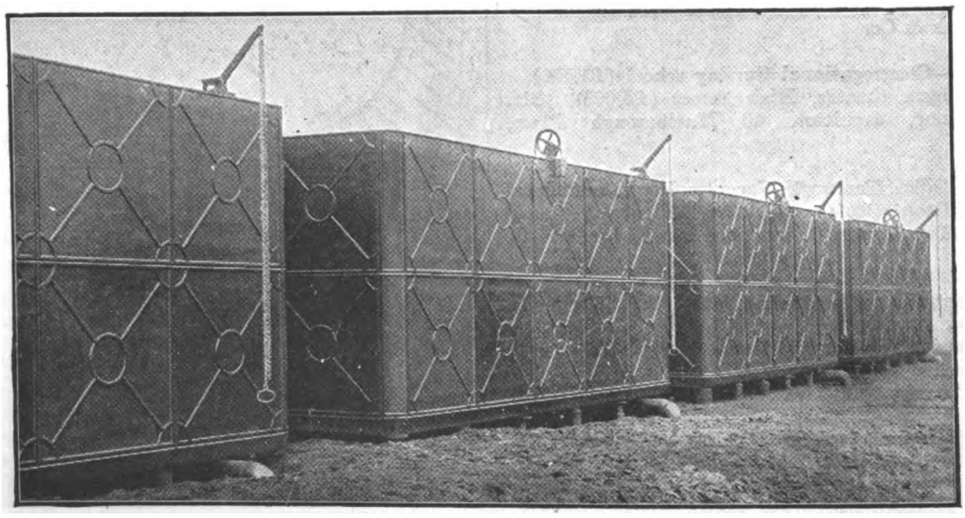
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the reception of an expanding joint, the outlet being formed in one end or side wall or in the bottom of the bath. Figs. 1 and 2 are detail views of one form of outlet connection. Fig. 3 is a detail view showing a modification. The outlet 7 may be formed in the body of the bath 1, or the bath may be formed with an aperture affording an outlet, the bath

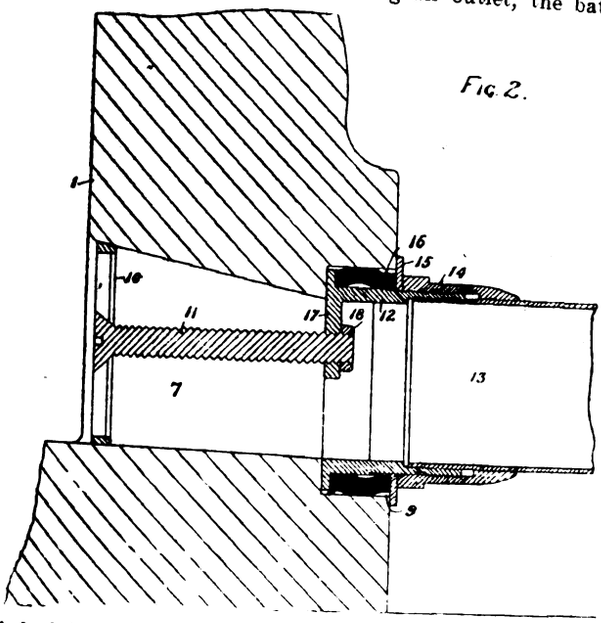


FIG. 2.

body being rebated around the outlet as indicated at 9. The outlet opening 7 of the bath is preferably tapered, there being fitted within the tapered passage a grating 10, secured in position by a screw-threaded pin 11 disposed substantially axially of the passage and secured by means of a nut 18 to a lug 17 or open framework formed on a flanged sleeve 12

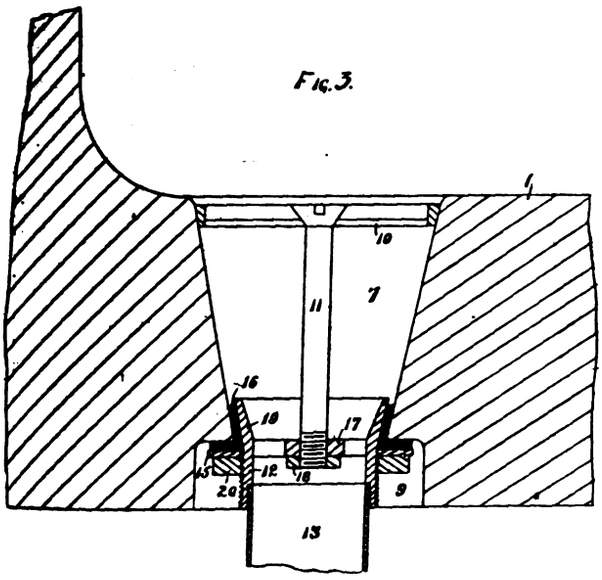


FIG. 3.

accommodated in the rebate 9. Said sleeve 12 is screw-threaded internally for engagement with the correspondingly threaded end of the outlet pipe connection 13, and is screw-threaded externally for engagement by a second sleeve 14 slipped over the outlet pipe connection. Between the inner end of said sleeve 14 and the face of the bath is interposed a washer 15 and interposed between the inner face of said washer 15 and the flanged end of the sleeve 12 is an annulus 16 or rubber or other packing material adapted to be compressed when the sleeve 14 is turned relatively to the sleeve 12 so as to enter into effective contact with the inner peripheral surface of the rebate. In the modified construction shown in fig. 3 the sleeve 12 is formed with an upwardly extending tapered flange 19 co-operating with an annulus 16 of rubber or the like and the walls of the outlet of the bath to form a joint. The application of lateral and end pressure is effected by a nut 20 in screw-threaded engagement with the sleeve 12.—June 9, 1914.

AT the last meeting of the Royal Institute of the Architects of Ireland the following members were raised to the Fellowship: Messrs. Edwin Bradbury, R. M. Butler, L. E. H. Deane, and J. J. McDonnell.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 6,325. March 12, 1914.—Paul Buerstinghaus, 47 Clarence Road, Hackney, N.E. Window latches or fasteners.

19,191. Aug. 23, 1913.—Wilhelm Lessing, Menzenberg, near Honnef-am-Rhine, Germany. Method of and apparatus for producing cement and the like from blast-furnace slag and like smelting products.

20,039. Sept. 4, 1913.—Dated under International Convention Sept. 7, 1912. Dr. Heinrich Specketer, Kauerstrasse 32, Griesheim-on-the-Main, Germany. Treatment of zinciferous materials.

20,116. Sept. 5, 1913.—Dated under International Convention Dec. 4, 1912. Dr. Reinhold Wallbaum, 13 Mittelstrasse in Sudende, near Berlin. Process of manufacturing asphalte.

20,566. Sept. 11, 1913.—Julius Sellin, architect, Birkenwaldstr 42B, Stuttgart, Germany. Means for indicating the flow of liquids in conduits.

20,665. Sept. 12, 1913.—Louis Wolf, 42 Wiednergurtel, Vienna. Floor-polishing and like machines.

21,293. Sept. 20, 1913.—Louis Lemkuhl, 3122 West North Avenue, Walbrook, Baltimore, U.S.A., and W. H. Thornton, 2921 O'Donnell Street, Baltimore, U.S.A. Adjustable shade hangers.

5,438. March 3, 1914.—Dated under International Convention March 7, 1913. Hugo Junkers, Frankenburg, 68 Bismarkstrasse, Aachen, Germany. Closed water heaters or geysers.

5,795. March 7, 1914.—C. H. Adams, White House, Fulford, York. Manhole covers.

6,546. March 14, 1914.—Dated under International Convention March 18, 1913.—Clemens Wegener, 17 Linkstr, Berlin, Germany. Easily refillable chemical fire extinguisher for sending a jet of fluid in any desired direction.

17,413. July 22, 1914.—Ludwig Zinserr, Murr, near Marbach, Germany. Oleaginous filling and absorbent material for use in the manufacture of linoleum, stone-wood flooring, and the like, and dynamite.

17,532. July 24, 1914.—Hans Ebert, Gottingen, Germany. Cooling systems (applicable more particularly in connection with buildings wherein the cooling medium is continually circulated through a refrigerator located below the cold-storage chambers).

14,221. June 12, 1914.—E. W. Archer, Eagle Street, Brisbane, Queensland, Australia. Means for reinforcing the standards of wire fences and for retaining the wires therein.

15,625. June 30, 1914, 15,626, June 30, 1914.—Dated under International Convention Jan. 5, 1914. 15,627. June 30, 1914. Dated under International Convention July 14, 1913, and 15,628, June 30, 1914. M. J. Whelan, Muskegon, Michigan, U.S.A. Closet seats and lids.

5,345. March 2, 1914.—H. E. Moul, of the Union Electric Company, Ltd., Park Street, Southwark, S.E. (Communicated by the Korting and Mathiesen A.G., Leutzsch, Leipzig, Germany.) Reflectors.

6,650. March 16, 1914.—Johannes Schmid, Blaubeuren, Wurttemberg, Germany. Fastening device for windows.

Any of the above specifications may be obtained from J. D. Roots & Co.

SIR,—The present list contains a large number of enemy patents which have been withheld from acceptance for a certain length of time by the Patent Office.

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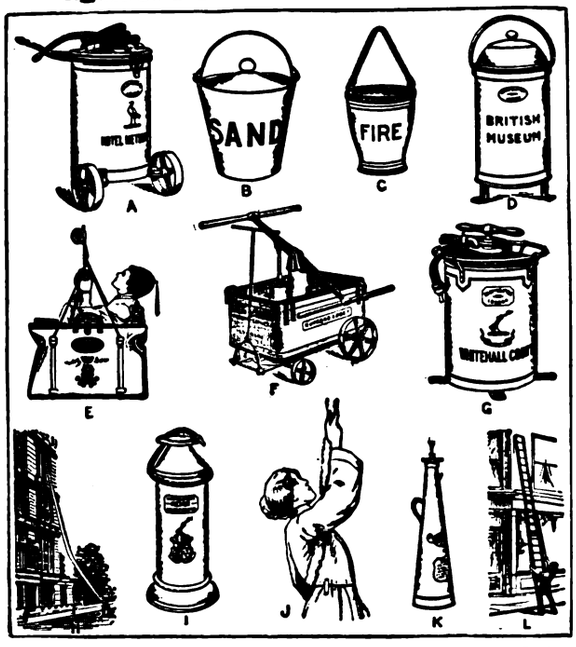
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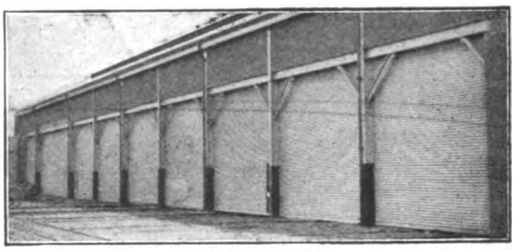
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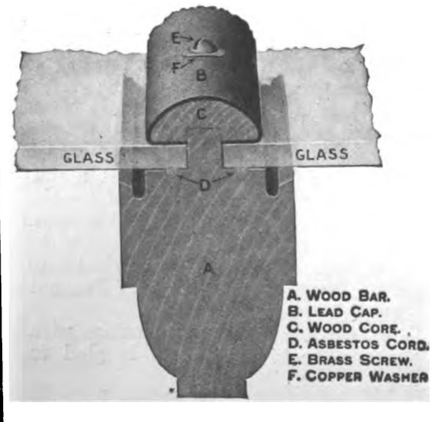


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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, July 16.

Architectural Association : Annual Exhibition of Students' Work and Prize Distribution at 3.30 P.M.

Tuesday, July 20.

Somersetshire Archæological and Natural History Society : Annual Meeting at Taunton Castle at 12 P.M.

DOMESTIC ARCHITECTURE AT THE ROYAL ACADEMY.

As regards important houses domestic architecture does not bulk largely in this year's Royal Academy exhibition. Most of the houses illustrated are of comparatively small size. As regards quality of design a high level is, on the whole, maintained, and the usual variety of motif is to be found. We have examples of the use of eighteenth century inspiration and in lesser quantity ideas borrowed from earlier periods. A notable very favourite feature is the outside green louvred sun-shutter, which, in combination with white sash and casement frames, gives relief of colour to red, purple, and grey brick.

"Sledmere, Yorks: south-west front of the hall as rebuilt," belonging to Colonel Sir Mark Sykes, Bart., M.P., is by Mr. Walter H. Brierley, who has based his design on the work of the Brothers Adam, using an order with flat pilasters and pediment running through the first and second floors of the house, over a restrained treatment of the ground floor. The colouring is quietly restricted in grey stone with slate roof. The whole design is scholarly and refined.

Mr. P. Morley Horder exhibits a "House at Caragh Lake, Co. Kerry, Ireland," in which he has well caught the appropriate local expression in an irregularly grouped building of grey stone with green slate roof, mullioned and transomed windows, bays and gables. "Westbury Manor, Bucks," by Mr. Clyde Young, is on very similar lines of design, but, drawn in brown ink, it fails in conveying the like impression, and, although the forms may be similar, it is to be hoped that the material colour, which the brown ink suppresses, is such as to be equally suitable to Bucks scenery. One can imagine how distressing the colour scheme that is appropriate to Kerry would prove if repeated in Bucks.

One of the few big houses in the exhibition is a "Country House in Eastern States of U.S.A.," by Messrs. Ambrose Poynter & Geo. H. Wenyon, a typical Palladian mansion, with pediments and porticos embracing the ground and first floors and with an attic above the cornice. Red brick for the walling and stone quoins with green outside shutters make up a good colour scheme, whilst a fine terrace, with steps leading up to it from the lower garden, give the house a dignified setting. "The New House, Airlie-gardens: north-east view," by Mr. Henry M. Fletcher, derives its inspiration from the same period, but is more modest in extent and expenditure. Here grey or purple brick walling, with bright red dressings to the windows and stone angle piers and cornice, unite with a slate mansard roof broken by dormers to form the colour scheme, which includes a moderate use of the green shutter.

Mr. Arthur Blomfield, in his "Bank at Luton," has given a quiet domestic character to the building, which has the bank premises on the ground floor and "chambers" above. The local purple brick is used with red arches and rusticated piers. The Batty Langley Gothick sash-bars are a quaint conceit that gives a piquant reminiscence. Mr. H. P. Burke Downing's "Small House at Kingswood, Surrey," is an object lesson in the art of making a small house picturesque without depriving the ordinary housewife of the opportunity of a plentiful expanse of window curtains. Mr. Downing gets over the bugbear of large window openings by discreet use of mullion and transome. We note, too, that he appreciates the value of strongly projecting eaves. In "No. 17 Avenue Road, St. John's Wood, N.W.," Messrs. Horace Field and Simmons & Faulkner have been forced, no doubt by their client, to admit large squares or "sheets" of plate glass to their double-hung sash windows, and their design accordingly suffers, as the red brick seems to want plenty of white sash-bars.

"Crow Clump, Weybridge," by Messrs. Tubbs, Messer & Poulter, is shown in two separate drawings, hung on different walls. It is a fine study of roof treatment, with high-hipped central mass, gables, dormers, and lofty chimney stacks of Norman Shaw type. Plastered walls and half-timbered bays maintain the characteristic feeling of the master, and the whole house is an excellent example of modern English domestic work without pandering to present pseudo-classicism. The same architects' "House at Sunningdale" has also an excellent roof treatment, but the colour thereof is brought down by means of mansard slopes and tile hanging, thus reducing the white plaster surface to ground-floor height.

Mr. W. Curtis Green's "House at Forest Row, Sussex," is shown in geometrical plans and elevations, and is a clever accomplishment of symmetry in the planning of an ordinary small house. Red brick and green shutters, with plainly treated windows, give simplicity and restraint to the exterior. Green shutters and, presumably, Crowborough brick, with a wooden porch and treillage balcony, are the elements of another house by Mr. Henry M. Fletcher, "Overwey," Tilford, Surrey.

A tour de force in symmetrical planning is the "New Farmstead and Cottages, Ewell Manor, Kent," by Messrs. Geoffry Lucas & Arthur Lodge, shown in a bird's eye perspective, which emphasises the axial and radiating disposition of the plan. Red brick walls and steep tile roofs give an added character of dignity. Mr. Cyril A. Farey's "Five Houses in Frognal Lane and Greenaway Gardens, Hampstead," being shown in small drawings, well skied, are difficult to appraise.

Messrs. Harold Bailey & Douglas Wood have instilled Tudor feeling into their "House at Bickley, Kent," where an L-shaped plan is partly carried out in half-timber, with a central porch and gable over, and partly in plain brick. Wood frames and mullions give a quiet vernacular tone and lend contrast to the half-timbering. Mr. Ernest G. Theakston in "Winton," Wendover, Bucks, has made a charmingly picturesque building of a small house with walls of one-storey height, surmounted by a good roof, broken by gables and dormers.

In a "House at East Finchley" Mr. James J. S. Naylor, and in its neighbour on the walls. "Proposed House near Leatherhead," Mr. Stephen J. B. Stanton have given us mechanical mixtures rather than chemical

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combination of features and motifs of varied date and type, borrowed from the cottage and the mansion, classic columns with mullions and transomes, brick gables, ornamental plaster, and diapers with renaissance quoins.

Messrs. Geoffry Lucas & Arthur Lodge, in their "First Design for House at Burnham, Bucks," have an ambitious garden scheme as setting for a white plastered house with tile roof, picturesquely composed with gables, bays, and portico, a contrasting note being introduced by a brick projection over an arched loggia, with which are connected the lines of brick chimney stacks.

"Whinburn," Keighley, Yorks, by Messrs. John W. Simpson & Maxwell Ayrton, appears to be a Tudor mansion with a bold tower. Excellent effect is obtained by the introduction of high blank wall space above the topmost windows. "Roehampton Court," by Mr. Frank S. Chesterton, is a good study of the eighteenth century Home Counties type of house, with two-storey fronts, divided into bays by flat pilasters and a high roof with dormers. A symmetrical *corps-de-logis* with an annexe is the plan-motif.

"The Mill-House, Fittleworth," by Mr. L. Rome Guthrie, is a good example of roof treatment, in which a moderate sized two-storeyed house is cleverly united to a long range of low buildings. Mr. Gilbert C. Waterhouse's "House at Hampstead Heath," in brick, half timber and tile hanging, broken up in mass, rather suggests a fortuitous jumble than a picturesque composition.

Mr. Andrew N. Prentice, in his "Proposed Mansion, Sussex," shows a long symmetrical front with a curved wing, which is presumably duplicated by a similar arrangement not capable of indication on the perspective. The situation apparently admits of a terrace with a supporting arcade in rusticated stone work that is very effective. A severe eighteenth century brick treatment is given to the façade, with shuttered windows, panelled parapet, and an attic set well back from the front. This design contrasts strongly with quite a different treatment in the same architect's drawing of "The Deil's Neuk, N.B.," an upstanding Scots baronial hall on a rocky and precipitous eminence and having the traditional circular corbelled turrets and other usual features. Mr. Edward P. Warren has faced the large window difficulty by the employment of wood mullions and transomes in his "House on Campden Hill, Kensington: view from south-east," which is obviously the garden front, on which the ground-floor is approached by a flight of steps. Red brick walls, with quoins and a renaissance cornice, comprise two storeys above the presumptive basement, and are surmounted by a green slate roof with dormers.

NOTES AND COMMENTS.

By the courtesy of Mr. Fred Scott, F.C.A., Secretary of the Manchester and Salford Sanitary Association, we have received an abstract of the results of an investigation made by Mr. William Thomson, F.R.S. Edin., F.I.C., &c., which were reported to the annual meeting of the Manchester and Salford Sanitary Association a few days ago, and although the records were taken in Manchester this method of investigation of air-pollution is applicable to all large towns. In order to measure the degree of pollution of the atmosphere Mr. Thomson devised an automatic electric apparatus by which the air was drawn by suction through a hole ½ in. by ¼ in. in an otherwise airtight stationary brass drum, the drum being connected with a vacuum pump. The air thus filtered leaves on the surface of a ribbon of filter paper over the hole the impalpable smoke and dust contained in it, the ribbon being drawn forward half an inch each half hour to obtain a new impression. This pollution is of so impalpable a character that it permeates all rooms in the city, and does not, of course, include smuts or heavier dust and fine ash which are constantly being discharged from factory chimneys.

The photographic illustration, which we regret is unsuitable for reproduction, shows the results of seven days' half-hourly impressions in seven ribbons pasted on cardboard. Each impression received a number according to a scale of different depths of colour. These numbers were added together for each day, and the total for all the Sundays, Mondays, and other days of the week during nine months were then added together and divided by the number of days represented. This gave the average for each day, and showed that the atmosphere was most polluted on Mondays and Tuesdays, whilst the following days became less and less polluted till Sunday, when the atmosphere contained least smoke.

Taking the average values of the impressions for the different corresponding half-hours during the different days of the week the following general observations were made. The maximum amount of smoke registered on the different half-hours of each day were: Monday, at half-hour ending 9 A.M.; Tuesday, at half-hour ending 10 A.M. (the half-hours ending 1, 1.30, and 2 P.M. being all about equal); Wednesday, at half-hour ending 8.30 A.M.; Thursday, at half-hour ending 12 noon; Friday, at half-hour ending 8.30 A.M.; Saturday, at half-hour ending 9.30 A.M.; Sunday, at half-hour ending 10.30, 11, and 11.30 A.M. (all these being about equal).

The average direction of the wind was taken for each day and the numbers representing the impressions for the days on which the average direction of the wind was the same were then added together and the averages taken for each direction of wind. These figures show that the greatest amount of smoke came from the N.E., the N.N.W., and N.W.; the purest air came from the west, the E.S.E., and the south.

The use of this apparatus and the study of the results obtained from it are capable of giving exceedingly interesting and useful data as to the pollution of the atmosphere of different towns, and at different centres in these towns, when the observations are continued for many months.

We recently referred to the decision of the Liverpool City Council to abandon for this year their usual autumn exhibition, but we are glad to learn that by the generosity of an anonymous benefactor there is a probability that the Council may be able to reverse that decision. At the last meeting of the Council Mr. Alderman F. J. Leslie was able to announce that a gentleman in Liverpool who is keenly interested in art matters has made a proposal that he would be responsible for the whole expenses of the autumn exhibition if the committee would hold it. In addition to that, he says he would wish the whole of the gross takings at the exhibition to be applied for the benefit of sick and wounded soldiers in Liverpool.

By permission of the Council, the Library, Museum, and Arts Committee were given an opportunity of considering the new situation, and at a special meeting, presided over by Alderman Leslie, accepted with gratitude the "very generous offer made by an individual benefactor to defray the whole cost of organising and holding the autumn exhibition for 1915-16."

It was agreed that the exhibition be held on the usual lines, subject to the following special conditions suggested by the gentleman making the offer: The whole of the receipts for admission to be contributed to the Liverpool branch of the British Red Cross Society; the commissions on the sales of pictures to be wholly devoted to the purchase of works of art for the permanent collection; that all members of his Majesty's Forces be admitted free of charge; and that arrangements be made for the free admission of schoolchildren at suitable hours.

The dismissal by the City Surveyor of Manchester of three members of his staff has been the subject of prolonged discussion by the Council. At the last meeting consideration of the matter was adjourned in order to receive the report of the Town Hall Committee, which is ultimately responsible for the staffing of all the departments. The report which the Committee presented shows that the majority of the Committee refused to take the view of their Special Committee of investigation that the

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dismissal of these men could be justified on the ground that there was no work for them to do in the City Surveyor's Department; and as the Sub-committee failed to find work for them in any other department, it was resolved by a majority of the Committee that two of the men, "with the approval of the City Surveyor, be reinstated." The statement made by Mr. Derwent Simpson, the chairman of the Committee, in presenting the report, indicated that those who voted for this resolution regarded the dismissal of these men as a form of industrial conscription, or compulsory enlistment. The whole question of the action and responsibility of the City Surveyor in the matter was raised by an amendment to delete the words "with the approval of the City Surveyor."

The amendment to leave out the words "with the approval of the City Surveyor" was carried by a vote of 35 against 25. If that had ended the discussion the intention of the Council would have been perfectly clear. But a second resolution was carried referring the question back for further consideration. The whole subject will therefore come up again at the next Council meeting.

In the struggle for, we will not say supremacy but for existence, between coal-gas and its competitors in lighting, heating, and power, it is largely owing to the propaganda undertaken by the British Commercial Gas Association, to which are affiliated some of the principal gas undertakings in the country, that the public have been kept well informed of the numerous economic and hygienic applications of coal gas and the advantages of its use as fuel and as an illuminant for domestic, industrial, and manufacturing purposes.

At a meeting of the Midland District Committee of the Association, held at Birmingham, the Chairman, Alderman Sir Hallewell Rogers (chairman of the Birmingham Gas Committee) urged some topical reasons for the use of gas. He said that the gas industry of the country had been able to render valuable assistance to manufacturers engaged in the production of munitions of war, and had placed before the public the advantages and economy of gas usage in the workshop and the home. At the present time it was necessary to practise the strictest economy in both the manufacturing premises and the homes of the people, and it was possible to economise in many instances by the application of gaseous heating. For years scientists and others had raised their voices against the national waste in using coal for heating purposes, whereby the valuable by-products were wasted through passing through chimneys and thus causing loss of health-giving sunlight and the blackening and destroying of many of the most valuable buildings in towns and cities. Surely no more opportune time than the present could be chosen for instilling into the minds of the public the economical advantages of gas. The value at the moment of the by-products of coal through distillation was well known to all, and the larger the consumption of gas by the public the greater should be the contribution of the Gas Department to the manufacture of high explosives.

Canon Rawnsley writes in the *Crosthwaite Parish Magazine* for July:—

"During the month some very important antiquarian discoveries have been made by Mr. F. C. Eeles, Rhind lecturer in archæology, 1913-14, which give additional interest to our parish church. It has been discovered that the walls, both of the north and south aisles, are late 14th century work, into which, as far as the south aisle is concerned, larger windows of Queen Mary's time have been inserted, and one in the north aisle. It is probable that most of the present building is coeval with the font, and dates from the 14th century. But many of the windows were renewed, and the present clerestory and the upper part of the tower were probably added about 1554. It has also been ascertained that originally a decorative border in black, white, and yellowish red paint ran round some of the windows.

"The great feature of the month's find has been the six consecration crosses on the outside of the north wall, making the series of twelve external crosses complete. At Ottery St. Mary in Devon there are thirteen, and at Cannington, Somerset, there are seventeen such crosses—an abnormal number in both cases; but Crosthwaite is believed to be the only church at present known where a complete series of twelve exterior crosses (the normal number) survives. Uffington, in Wiltshire, has eleven.

"Mr. Eeles has been fortunate in discovering eight other chrism crosses, and a possible trace of a ninth, on the outside walls. These had been covered up by plaster when the church was restored by Gilbert Scott in 1844. It is not improbable that the three other crosses that originally existed inside the church were destroyed when the stone of the windows was re-dressed at that time. It would also appear that these internal crosses were outlined in black and surrounded with a black line in the manner of a rectangular frame. In one cross there is the appearance of its having been painted red, as they probably all were originally.

"The employment of external in addition to internal crosses is peculiar to the English use, which means that although the consecration took place in the reign of Queen Mary, probably about 1554, at the hands of Dr. Aldrich, then Bishop of the Diocese, the old English and not the Roman rite for consecrating the church was used. The 16th century piscina in the chancel has been cleared of plaster, and in the process some complete octagonal stones have been discovered, possibly taken from a pillar long since destroyed, built into the adjacent respond of the south arcade. Mr. Eeles has also examined the bell at the parish room. The lettering of the inscription is in small Lombardics, and probably belongs to the early part of the 14th century; it is, therefore, one of the oldest bells in Cumberland."

The Bishop writes: "How interesting the consecration crosses are. I am delighted that they have been discovered."

If the statements made therein are true, the protest of the Edinburgh and District Local Managing Committee of the Amalgamated Society of Carpenters and Joiners reveals a very curious not to say discreditable state of things. The protest says:—"You will note we have a number of men out of work, while the Government calls for men, and tries to make the public believe they can't be got. These men are drawing State and union unemployment benefit, so the fact of their unemployment may be presumed to be within the knowledge of at least one Government Department. Most of them have offered themselves as munition workers, but owing to their being out of work they are refused even registration for this work. At the same time middle-class women are being employed by thousands on this work, and men unfit for military service, and in more or less constant employment, are being registered as fast as they come forward, if they care to say they have worked, at some more or less remote period of their lives, for a few days on board anything floating. Can the Trades Council do anything towards giving these facts publicity, or, better still, urge upon the Government the necessity of employing first the men of the country who are both willing and able to work at making munitions or anything else so long as they are guaranteed a living wage?"

The provinces not infrequently show the way in practical progress to the Metropolis. An example of this is to be seen in the way in which the centralised supply of electricity has been tackled in the Midlands, whilst the London County Council has felt compelled to withdraw its scheme on account of threatened opposition. The *Birmingham Daily Post* gives the following account of the provincial solution of the problem:—

The Shropshire, Worcestershire, and Staffordshire Electric Power Company is in its practical operations the youngest of the power undertakings, and distin-

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guished from them in other ways. While the earlier power companies started from zero, as it were, to build up a business in the supply of electricity in bulk and for industrial purposes, the Shropshire Company has founded its enterprise upon a combination of existing undertakings. That is to say, instead of creating centralisation it has set to work to modify existing supplies in the direction of centralisation. The importance of this difference will become more clear when we consider the way in which the change from isolated stations to a linked-up system of supply is being brought about.

The Company was incorporated by Act of Parliament in 1903, and supplementary Acts were obtained in 1905, 1906, and 1914. Under these Acts and subject to the terms thereof the company was *inter alia* empowered to construct main power stations for the supply of electrical energy within an extensive industrial area bordering upon Birmingham on the west of that city, and (with certain reservations) extending into the counties of Shropshire, Worcestershire, and Staffordshire. The company has also acquired the electric lighting orders for Oldbury and Smethwick, Cannock, and Dudley; it owns the Hales Owen Lighting and Traction Company, Ltd., and a controlling interest in the Kidderminster and District Electric Lighting and Traction Company, Ltd. The policy of the company is to consolidate the electric supply of such districts under uniform management, not only to save money in administration, but to secure the highest economy in the generation and distribution of electricity.

The main power station of the company at Smethwick is favourably situated for the cheap production of electricity on a large scale. With the extensions now approaching completion the plant capacity (mostly in steam turbines) will rise to close on 20,000 kw. The generating stations taken over at Dudley and at Kidderminster are, however, in what might be called a back-water of the stream of electrical progress. At Dudley the total plant capacity is only 1,600 kw., and there are no fewer than six reciprocating sets installed. At Kidderminster four reciprocating sets and two small turbines give a total capacity of 1,400 kw. However excellent such equipment may have been in its own time and for its limited area, it is, strictly speaking, obsolete in relation to modern ideas of generation on the large scale. Therefore the problem before the Shropshire company was to bring the equipment up to date with the least possible sacrifice of the capital invested in it. Every part of a generating station does not grow antiquated at the same rate. Engines and dynamos become most rapidly obsolescent, while the boilers and buildings—elements which were inherited from the more stable age of mechanical engineering—retain their efficiency almost unimpaired. If the entire station had been scrapped and made a mere sub-station, taking supply from Smethwick, the economy effected might in time have sufficed to pay off the lost capital. But the Shropshire Company chose a less heroic and more businesslike method. At the Dudley station the collection of reciprocating sets is to be replaced by a single turbo-generator, large enough to take full advantage of the boiler capacity. By this means the equipment will be raised to its highest productiveness, and all the capital in buildings, boiler plant, furnaces, smoke stack, and so on, retained in active service. At Kidderminster a similar policy will be pursued.

The economic value of such a change depends, of course, upon the linking-up of the transformed station with the main station. When the alteration is completed the three stations will, by means of connecting mains, work as one station. The division of labour will tend to additional security of supply, and it will also reduce the transmission losses which would be incurred if all the generating for so wide an area were carried out at a single point.

The interest of this scheme is by no means confined to the Shropshire Company. Electric supply authorities in all parts of the country recognise the value of linking-up with other authorities, and realise that the policy of isolation cannot be defended any longer from the standpoint of economy in supply to the public. Nevertheless, there is a great and a quite natural reluctance to undergo the transformation which consolidation or combination implies. So long as the segregated undertaking can rub along at a profit there is little incentive to change the generating station into a sub-station. The sacrifice of capital—capital invested in buildings and equipment which have many years of useful life before them—seems altogether too great. The Shropshire example shows, on the other hand, how an effective linking-up can be achieved without the sacrifice of any more plant than is already ripe for the scrap heap in any case. Reciprocating sets are altogether a thing of the past; the future lies with turbines, and the larger the better. If we take the case of a dozen adjacent but separate undertakings with reciprocating and turbine plant, it is easy to see that, with the scrapping of the reciprocating sets, the removal of the smaller turbines to absorb the full capacity of the lesser stations, the installation of large turbines in the big stations, and the linking-up of all these equipments, consolidation is obtained with a minimum of loss and disturbance.

The financial situation created by the war makes it all the more incumbent upon electric supply authorities to conserve their expended capital, and to keep down the price of current to local industries. The method of reorganisation here described offers a simple working solution for that apparently insoluble problem.

A lengthy and valuable report on the museums of Sheffield, with a view to their extension and closer identification with the educational and industrial activities of the city, has been prepared by Dr. F. G. Ogilvie, Director of the South Kensington Science Museum.

Dr. Ogilvie has presented a complete survey of the existing museums collections in Sheffield, and is of opinion that on the whole they have been equipped on sound lines, and there is little or no ground to be retraced. The time, however, has come when a broader outlook should be taken, and Dr. Ogilvie's report sets out a clear and worthy purpose and the best means of obtaining it.

The Special Committee which has been considering the matter unhesitatingly recommend the Council to adopt the principle of Dr. Ogilvie's report. It may, they point out, be several years before the scheme in its entirety can be carried out, but it will be of the greatest value if its recommendations can be kept in mind as embodying the ideal which it is the constant endeavour of the Council to realise.

Dr. Ogilvie has urged that the site to be selected should be in the centre of the city. This proposal has much to recommend it, but it is felt by some members of the committee that there would be many advantages in having the permanent collection housed in Weston Park, where its contiguity to the University and its comparative freedom from smoke and noise would give some advantage not attainable in respect of a more central site.

The committee do not make any definite recommendation regarding the utilisation of Abbeyfield House, as it is probable that so long as the war continues the house can be most usefully employed as a workroom for women.

What Dr. Ogilvie in his report suggests as the proper ultimate aim of the Council in the matter of museum provision is "the development of the museum as a living element in the organisation of a large community. With more ample opportunities the 'City Museum' would be in a position to extend its usefulness along lines already opened up. More than ever would it be valued as a centre of reference to objects that bring home to people some of the great facts of nature and of the history of man on the earth, something of the principles of science, and of the leading achievements of man in applying these to manufactures—something of the feeling of art and the artistic interpretation of the world of men and things. By lending to schools and to park houses, it would extend the

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advantage of its collections widely, and would lead many to enjoy and to profit by the collections in the Central Museum."

WAR ITEMS.

PROFESSIONAL CLASSES AID.

IN regard to the question of distress among members of the professional classes, the following statement has been issued by the Professional Classes Sub-Committee of the Government Committee on the Prevention and Relief of Distress:—

On October 21, 1914, the Government Committee on the Prevention and Relief of Distress appointed a sub-committee, under the Chairmanship of Mr. J. A. Pease, to consider questions relating to the prevention and relief of distress among professional men and women. This sub-committee decided that professional men and women in distress can as a rule be assisted most efficiently through benevolent and relief organisations representing their particular professions, and on the recommendation of the sub-committee grants out of the National Relief Fund have been made to various organisations representing those professions particularly affected by the war. As might be expected, the professions which have suffered most on account of the war have been the professions connected with the Arts—Literature, Music, Art (including Architecture), Drama. Apart from the grants which have been made to benevolent funds connected with the artistic professions, the Professional Classes Sub-Committee have recommended grants to several organisations relieving distress among musicians and other artists by employing them at entertainments for the troops in the camps, &c. The sub-committee have also recommended grants in aid of a scheme of civic survey put forward by various organisations representing the interests of architects and surveyors, with a view to giving employment to persons connected with those professions. With a view to assisting the smaller touring theatrical companies (which have been much affected by the war) to continue their tours, the Board of Trade, on the recommendation of the Professional Classes Sub-Committee, granted certain travelling facilities during the period of Government control of the railways. The general arrangements for alleviating distress among professional and educated women have been made by the Professional Classes Sub-Committee through the Central Bureau for the Employment of Women, 5 Prince's Street, Cavendish Square, W. Since the outbreak of the war the Central Bureau have dealt with some 1,500 cases of unemployment and distress among professional and educated women. In a large number of cases employment has been found, and in many cases financial assistance has been or is being given out of the grants from the National Relief Fund entrusted to the Central Bureau. Special arrangements for the relief of distress among governesses have been made by the sub-committee through the Governesses' Benevolent Institution. The sub-committee has also recommended grants to two associations for training women in nursing and midwifery. In order to meet the claims of those professional persons whose cases did not fall within the scope of any of the existing benevolent or relief organisations, the Professional Classes Sub-Committee appointed a special society (under the chairmanship of the Hon. T. H. W. Pelham, C.B.), called the Professional Classes Special Aid Society, for investigating and assisting such cases. This society has already dealt with a considerable number of cases. Up to July 7 some £13,000 has, on the recommendation of the Professional Classes Sub-Committee, been distributed among the various benevolent funds and professional organisations.

The address of the Secretary of the Professional Classes Sub-Committee is Mr. J. B. Beresford, Board of Education, Whitehall, S.W.

THE HON. JOHN COLLIER'S LANDSCAPE STUDIES.

WHEN our eyes have been greeted for long years by a specific class of work, emanating from the genius of some particular artist, it is with a mingled sense of curiosity and distrust that we are prepared to meet a new phase—or if not new, at any rate hitherto unsuspected by us. We know the good and the weak points of So-and-so in the one class of subject: we fear lest the substituted class may supply only weak points.

But it is without dread of results that the Hon. John Collier is able to say, "To-morrow to fresh woods and pastures new"; he possesses a sure and justifiable confidence in his own powers, such as Sir A. Conan Doyle has exhibited in the paths of literature. Mr. Collier's problem pictures have been for a long time beloved or admired or sought after (as the case may be), and the fact that no two people casually meeting agree as to the solution of the problem, in no way affects the admiration for the artist's power of delineation, his grasp of composition, his well-ordered palette. Who can forget "The Fallen Idol" with all its tragic pathos—one might almost say, with all its pathetic tragedy? And is it more of an honour or more of a reproach to pose as the model for one of Mr. Collier's "under-world" heroes or heroines?

In portraiture, too, as may be readily understood, this artist is a past-master. But we might well debate what success would greet him when he turned his attention to landscape and to architectural studies.

The answer is furnished to-day in the masterly exhibits displayed on the walls of the Leicester Galleries. For what a fine succession of pictures, a fine trio of artists, is the public indebted to Messrs. Ernest Brown and Phillips—Alfred Parsons, Lady Butler, and Mr. Collier! The works of the first-named have disappeared to make way for the last. Lady Butler's exhibition, having fully achieved its patriotic purpose, is about to disappear (will doubtless have disappeared ere these lines see print), and we are momentarily left with Mr. Collier in his hitherto unsuspected vein.

Only a half-hundred exhibits, but of such rare merit! As we are never afraid to animadvert where we regard a wrong done to artistic presentation, our praise may be accepted at its face value. And, in the first place, let us congratulate Mr. Collier upon his happy faculty of selection of subject with its limiting foreground and background. Where art-critics fail in general is in a sufficiently extensive vocabulary wherein and whereby to express variously their views as to the works submitted to their criticism; repetition is apt to give an impress of affectation, of insincerity. And therefore if we say that "A Breeze at Woolacombe" seems to have imbibed the spirit of the salt seas, we are conscious of having said much the same before, and yet are repeating it now in the full knowledge of its justification.

Mr. Collier's power of depicting architecture is made manifest in several studies; some of these are reproduced as full-plate illustrations in this issue of *The Architect*. "Denderah" is very feelingly represented, and shows a sense of breadth; "Inside the Kitchen Garden" is a delightful little panel-picture, with the trees sympathetically touched in; and "The Outer Walls of Carcassonne" we regard as notable for the colour, distance, atmosphere, and scale. "Lago di Lecco" is a revel of tender colour, and "A Green Garden" is a rhythm in the tones and tints of the sward and topiary display and the harmonising stone pedestal. "Storm on the Lake of Como" is a gem in neutral tones, and the delicate technique of "Sandhills at Horsey" combines with the faithful rendering of "material"; this, too, is a feature in the masterly study, "The Cliff." If we used the term gem for one picture, it is certainly applicable to "Woolacombe Sands" and "The Beach at Saundersfoot"; and "The Eiger and the Mönch" is a very fine study. "The Shadoof" tells well against the sky.

Even for the sake of obviating a flavour of palling by reason of unstinted praise, we would not invent any animadversive criticism; but as in some slight respects we are able to offer remarks of this nature, we will take occasion to do so. At times there is a quasi-chromolithographic effect about Mr. Collier's work, as in "The Valley of the Rhone," "The Sea of Cloud, Montana," and "A Ski-ing Slope, Montana." In "Orange Trees in the Garden of Lindaraja" the draughtsmanship of the fountain masonry work is weak, and there is the same or a similar criticism to offer regarding "Outside the Villa

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Carlotta"; but these works also are in other respects noteworthy. And here our destructive criticism ends.

We have reserved for the conclusion any remarks about the subjects of our plate reproductions, and it is only necessary to say how one is penetrated by the sense of the "truth" of these presentations. Mr. Collier is not an architect, but evidently possesses the sensitiveness of our profession for the poetry inherent in noble architecture.

UNIVERSITY COLLEGE (LONDON) SCHOOL OF ARCHITECTURE.

AN exhibition of students' work done during Session 1914-15 will be on view in the Architectural Department, University College, Gower Street, from Saturday, July 17, to Saturday, July 24 (both inclusive), from 10 A.M. to 5 P.M.

The exhibition includes drawings and designs made in the School of Architecture and the newly founded Department of Town Planning. The Sir William Lever prizes have been awarded as follows: Stage I. Town Planning. Scheme for a central railway station on the Surrey side.—First prize, £15, A. G. Wood; second prize, £10, H. N. Fisher and L. H. Shattock (equal).

Stage II. Architecture. The architectural development of a portion of the above.—First prize, £15, H. N. Fisher; second prize, £10, I. Reicher; honourable mention, A. G. Wood.

LONDON COUNTY COUNCIL.

AT this week's meeting of the London County Council, Alderman Scott drew the attention of the Chairman of the Building Acts Committee to the questions recently asked in the House of Commons with reference to the lack of safety staircases in many large blocks of flats in the Metropolis. The Home Secretary, it will be remembered, asserted that responsibility in such matters rested with the L.C.C.

Having regard to the danger arising from incendiary bombs dropped from hostile aircraft, Mr. Scott asked if the Committee would consider the advisability of issuing instructions to compel property owners to provide other means of exit than the main entrance staircases and lifts, which acted as air-shafts and became most dangerous in case of fire.

Mr. Kingsley Wood (Chairman of the Committee) said the Council's powers under the London Building Acts were not designed to meet an emergency such as that arising from the dropping of bombs. Cases, however, to which the Council's attention had been drawn under Section 9 were being investigated, and owners were being informed of the works which the Council had power to require. "If," added Mr. Wood, "the hon. member can suggest any special precautions which should be taken with reference to bombs, I shall be happy to confer with him."

On the ground of advancing age, the Council agreed to dispense with the services of Mr. J. D. Mathews and Mr. F. Waller, district surveyors for Stoke Newington and St. Pancras South respectively. Mr. Mathews is seventy-six years of age, and Mr. Waller eighty-four, and the Building Acts Committee felt it was desirable, in the public interest, that they should be relieved of their duties. Both gentlemen had been invited to submit their resignation, but had not done so.

COMPETITION NEWS.

NETHERLAND EAST INDIES.—H.M. Consul at Rotterdam (Mr. E. G. B. Maxse, C.M.G.) reports that the Council of the International Association for Rubber Cultivation in the Netherlands East Indies is organising an international competition for (1) a plan for a complete rubber estate factory principally for the making of "crepe," and (2) a plan for a complete rubber estate factory principally for the making of "smoked sheet." Both plans are to be drawn up in such a way that at first the capacity of the factory will amount to 100,000 kilogrammes of dry rubber per annum, which by three extensions can be increased to 250,000 kilogrammes (kilogramme = 2.2046 lb.). The projects should be accompanied by a detailed description of the factory and of the way in which the competitor considers the product should be treated, and also of the necessary machinery. Projects may be made in English, and should be sent in before March 1, 1916, either to the office of the Association, 13 Kneuterdyk, The Hague, or to the office of the *Algemeene Vereeniging van Rubberplanters ter Oostkust van Sumatra* at Medan (Deli). For the best project a prize of 1,500 florins is offered, and a prize of 500 florins will be given for the second best project (florin = 1*s.* 8*d.*). The conditions of competition may be consulted by persons interested at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

ILLUSTRATIONS.

PHILAE, EDFOU AND LUXOR.

THE paintings by the Hon. John Collier from which our illustrations of Egyptian architecture are taken will be found described in our critique of the artist's landscape work at the Leicester Galleries. Although we are unable to reproduce the colour, the fine draughtsmanship and the capabilities of our "ink-photo" process result in a satisfactory record of the architecture portrayed by the artist.

WROUGHT-IRON GATES AT ALL SOULS COLLEGE, OXFORD.

IT will be seen from the drawing that the gates are of rich design, and the workmanship is exquisite. The building appears to be a mixture of Gothic and Classic styles. The distribution of mass is well arranged, and the colour introduced into the arms adds greatly to the general effect.

EIGHTEENTH-CENTURY RAILING.

THIS railing was presented by the First Commissioner of H.M. Works to the Geffrey Museum, Kingsland Road, N.E.

It is a French piece of work of the early part of the eighteenth century, and consists of wrought iron with bronze leaves about $\frac{1}{8}$ inch thick screwed on to a backing of wrought iron. The different parts are connected together with suitable length screws, in some cases piercing through the solid connecting balls. The sketch was submitted in our Students' Sketching and Measuring Club by Mr. J. H. Whittick.

THE new Roman Catholic Church in Town Row, West Derby, Liverpool, has been solemnly opened by Dr. Whiteside. The work is the result of a bequest in 1912 of £10,000 for the provision of a church. The edifice, with a priests' house adjoining, is quite complete, except for the Stations of the Cross, which were ordered from Belgium before the war broke out, but which, in the present troublous times, it has been impossible to deliver. The church is of Gothic design in red sandstone, by Messrs. Pugin & Pugin. It has a nave and two aisles, with three beautiful altars of alabaster. It has seating accommodation for 450 people.

THE annual examination of the works executed by the students of the Royal Hibernian Academy School, during the past session, took place on July 6, the judges being Mr. Dermod O'Brien, P.R.H.A., Mr. J. M. Kavanagh, R.H.A., and Mr. N. Blair Browne, R.H.A. The following awards were made:—Drawing from life: 1st prize, A. H. M'Lean; 2nd prize, F. S. Day; 3rd prize, M. Barry. Painting from life: 1st prize, A. Conyers; 2nd prize, A. H. M'Lean. Drawing of hands and feet: 1st prize, A. H. M'Lean. Composition (subject, Devotion): 1st prize, A. H. M'Lean; 2nd prize, A. Conyers. Extra prizes: Painting, M. Barry, F. S. Day, E. Shannon. Drawing: R. M. Dillon, D. V. Rushton.

A NATIONAL movement is on foot in Scotland for the housing and care of men who return from the war disabled—to provide houses and workshops on the garden-city principle. Arrangements are being made to secure ground for the erection of cottage homes, and plans have been prepared by Lord Dean of Guild Henry, Edinburgh, consulting architect of the scheme, showing thirty-nine houses, three shops, and three workshops. It is estimated that the scheme will provide accommodation for 175 persons, including wives and families. In the workshops men who are able to perform light work, such as basket-making, carving, metal work, and poultry farming will be provided with employment, and after suitable training they will be encouraged to find work elsewhere. The cost of the houses, shops, and workshops, including roads, grounds, water, drainage, &c., is estimated at £11,000. The above represents the beginning of the scheme, and in order to develop it a sum of £50,000 is required.

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PLASTER: THE MICRO-STRUCTURE OF THE RAW MATERIALS.

SECTION I.

Written and Illustrated by James Scott.

CONSIDERING the great amount of plaster work of all kinds which is carried out, it is remarkable that it has not received more minute attention than has hitherto been accorded to it. There is certainly a wide field awaiting investigation, and the present illustrations that I have specially prepared from direct observations on the substance will emphasise this point.

In only a few instances are the processes alluded to by separate names, so that it will be convenient to group them all under the general heading of this article, the distinctions being made plain as I proceed with the subject.

The greatest contrasts between plasterings are to be found in the wretched products of the jerry-builder's hirelings, and the permanent results achieved in frescoes. The one is a work of unfair profit, the other a work of art. There is no reason whatever why such crude results should be so constantly observable as is the case with so much common plastering. We must not, of course, expect a facing of egg-yolk, or white, nor of fig-shoot milk, to impart fineness of texture and elegance of general appearance; but good, "raw" materials are sufficiently cheap to enable the builder to afford the production of work which will not easily blister, crack, and fall to pieces.

Not only is it necessary that the ingredients should be of intrinsically suitable quality, but their condition and manipulation ought also to be carefully considered. Using them before they are correctly ready for the purpose is always a bad practice, and leads to subsequent trouble and the necessity for making repeated repairs.

It of course depends on the nature of the finished work required as to what particular substances are used, and the number of layers that are superimposed one on the others. An ordinary plaster, used as the rendering coat, consists of slaked lime, sand, and cow-hair. It is usually left with a roughly trowelled surface to serve as a key or receiver for the floating coat, which is finally covered with another composed of pure lime. The trowelling or otherwise of this deposit depends on whether paper or paint is to be placed above it.

Some authorities believe that the floating coat is bad in principle, and ought to be dispensed with. The main point to bear in mind is that the work should proceed from

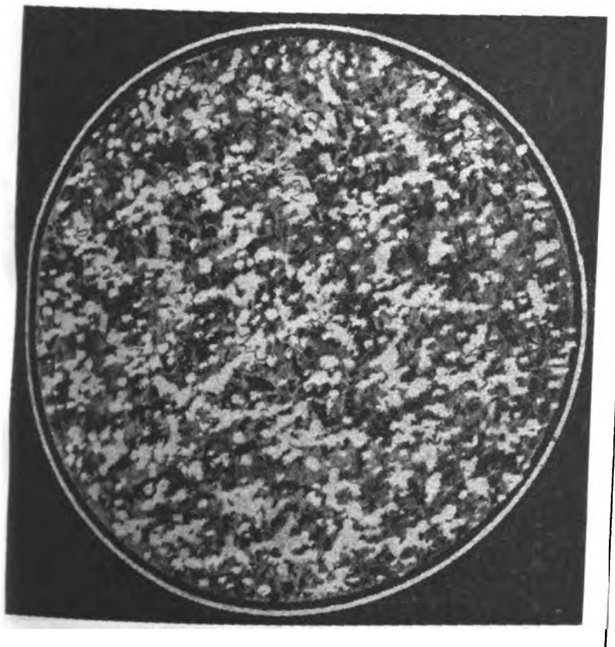


FIG. 1.—A quantity of slaked lime, about $\frac{1}{25}$ inch wide, greatly magnified.

coarse to fine. Theoretically, therefore, the greater the number of layers, each succeeding one being finer than the preceding, the better should be the result. Each coat should bind itself to the one immediately beneath it by filling the pores of the latter. In this way no cavities—or at any rate only a few—would be evolved in the plaster.

It is a regular and most reprehensible practice for men to compound together lime and sifted earth or mould obtained from fields or roadways. The impression underlying this foolish custom is no doubt to the effect that the ground consists chiefly of mineral matter. The fact that a great percentage of the material is organic in character, originating from either animal or vegetable forms, appears to be totally ignored in such affairs. It is largely due to the presence of these particles of *débris* that so much mildew, staining, and kindred defective development occurs. In addition to the organic rubbish contained in soil, from whatever source it is derived, there are several soluble salts from the solution of which plants secure their nourishment. These may dry up in the work and dissolve again

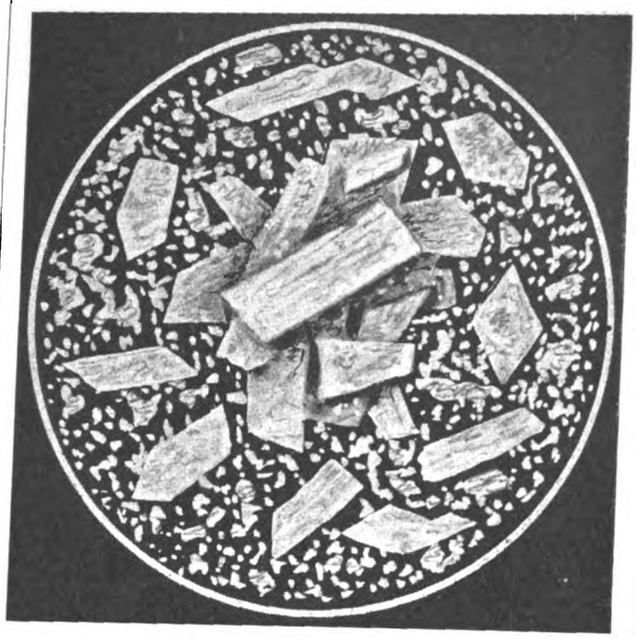


FIG. 2.—A heap of plaster of Paris grains, about $\frac{1}{25}$ inch wide, greatly magnified.

under the influence of damp arising from various causes. Many complicated chemical operations are then involved, and these tend to disintegrate the plaster.

It is a bad plan to act, as some builders do, in using lime obtained from soap works. This substance frequently contains glycerine, and walls or ceilings in which the latter is incorporated will never become properly dry.

If any salt remains in the sand used in making plaster it will considerably interfere with the quality of the work, by retaining moisture or absorbing it and crystallising out in very dry weather. Lime is divisible into three distinct groups—namely, caustic lime, slaked lime, and mild lime. The first, technically called lime oxide, is obtained by calcining marble, chalk, limestone, and so on, thereby driving off its carbon-dioxide, the gas widely called carbonic acid gas, and CO_2. When water is added to this kind it forms slaked lime, which is known scientifically as lime hydrate and lime hydroxide. Upon exposing caustic lime to the air for some time it gradually absorbs carbonic acid, and becomes lime carbonate or mild lime.

Theoretically, 56 lb. of burnt or caustic lime, placed in water or exposed to moist atmosphere, needs 18 lb. of liquid to form 74 lb. of slaked lime. These 74 parts of hydrate lose their 18 parts of water, and take up 44 parts of carbonic acid, and become 100 parts of mild lime or carbonate. It is believed that whenever 100 lb. of mild lime are calcined 44 lb. of carbonic acid are driven off, leaving 56 lb. of caustic lime behind. This quantity, by simple exposure to the air, will henceforth recover the 44 lb. of carbonic acid and become 100 lb. of mild lime again. In practice there are, of course, many deviations, because the state of the air is not constant, and rains, fogs, &c., interfere with the course of events. Men who mix lime will know that if the hydrate (or slaked lime, as the worker calls it) is left in the form of a thick paste it will eventually become a hard, solid, crystalline mass, like marble. Chemically it is the same as the latter substance, being a lime carbonate. Occasionally beautiful, large, separate crystals can be obtained in this way.

The microscopical appearance of newly slaked lime is depicted in fig. 1. The particles composing it consist of

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minute square, angular, and similar objects, the fusion of which gives rise to the larger ones.

Plaster-of-Paris is, chemically, lime sulphate—*i.e.* a compound of lime and sulphuric acid. It is prepared by carefully heating gypsum in continuous furnaces or kilns, free from contact with fuel, at a temperature of 120° C. By these means a large amount of the water naturally contained in the mineral is driven off.

There are various kinds of gypsum—the granular, compact, fibrous, siliceous, &c.—but they all conform in being

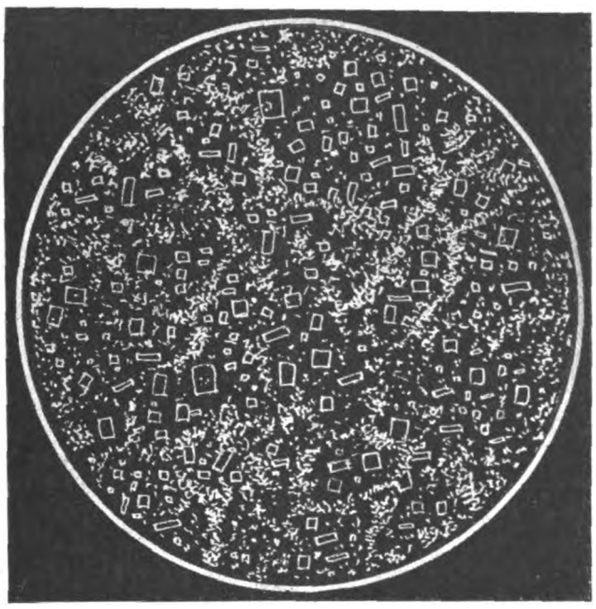


FIG. 3.—A quantity of whiting lying in water and sized, about $\frac{1}{32}$ inch wide, greatly magnified.

composed essentially of lime and sulphuric acid. Upon mixing water with the powder obtained by crushing and calcining the gypsum it is resolved into its original hard condition. The crystals have the capacity for absorbing as much water as they have been deprived of, and of expanding and re-cohering to one another. This fact simply explains the mystery of the setting process. Plaster-of-Paris is disclosed under the microscope as a semi-crystalline powder of the kind shown in fig. 2. Some of its particles are so shapely that they deserve to be called actual crystals; others have some portions fairly uniform, but are irregular elsewhere; while the remainder are formless, and consist chiefly of detached pieces of the more perfect ones.

The final plaster, known as whitewash, which is used on ceilings, consists of lime carbonate (mild lime in the form of whiting), size, and a little blue colouring. It is often called whitning, and whitening, and is made by finely grinding chalk and casting it into streams which end in pools. The heavier, larger particles sink at once, or at an early stage, while the finer ones are suspended in the water and carried into the pools, where they gradually form a bottom deposit, which is broken up into chunks after the water has been drained from the pools.

One has only to refer to fig. 3 to understand the extreme fineness of the whiting particles. They are practically beyond ordinary computation, as it would be useless to reckon them in *microns* for these pages. A *micron*, by the way, is one-twenty-five-thousandth of an inch. This fineness forms one of the advantages of using whiting, because it is capable of being forced into the tiniest pores. It seems to need a binding medium, however, for, although when fresh the particles cohere firmly, they are capable of drying and falling as dust.

Nearly every sample of size that I have examined contains multitudes of minute, transparent crystals which are denoted only by their edge lines. They are formed with wonderful precision, and are no doubt due to the chemical materials employed during the boiling of bones, sinews, leather scraps, and kindred refuse, which then yield up their gelatin—*i.e.* size. The crystals are shown in fig. 3. Exactly what their influence is in connection with plaster it is impossible to say.

It should be noted that the contents of the illustrations are drawn in relative proportions with each other. In every case the whole amount shown would fill a pinhole space of about one-twenty-fourth-inch wide. This quantity could hardly be seen with the naked eye, yet there is much difference in the dimensions of the various substances!

SECTION II.

ITS MICRO FORMATIONS WHEN FINISHED.

We cannot expect finished work to be satisfactory unless the raw materials are of good quality and have been properly prepared. It is unfortunate that in the matter of lime great carelessness is often evident. For rough plastering work it has been found advisable to keep slaked lime for at least two months stored in slate tanks. It is best mixed in a grouting box having a sluice one or two inches from the bottom. When finer work is anticipated it is preferable to repeat the grouting operations and strain the cream of lime through hair sieves. For the best quality work this cream is kept in screw-stoppered stone jars, and the fluid which gradually exudes to its top is poured away. Reclosing is necessary to prevent complete carbonation or conversion to mild lime, otherwise its properties of binding and hardening would be interfered with. Only about one-third or two-fifths should be allowed to become carbonate. It is worth while stating that the material for the frescoes in the Houses of Parliament was prepared in this manner.

The retention of any noticeable amount of caustic property is deleterious and should be avoided. A test for the detection of this strong, corrosive alkalinity is to lay a damped strip of red litmus paper (procurable cheaply at any chemist's) upon the plaster here and there. If its colour remain the same the lime may be regarded as neutral and fit; but in the event of the colour changing to purple or blue the existence of the caustic will thus be proved, its strength being in correspondence with the extent of blueness imparted to the paper.

In like circumstances wetted yellow turmeric will not alter if the plaster is all right, but will change to red should any caustic remain.

Caustic lime—even although only small in quantity—left in plaster that contacts with wood will damage the fibres of the latter, and in this way considerably weaken the substance. This is one of the causes for cracked plaster, because the latter loses its grip on the wood and bulges outwards until the tension produces fissures. Fumes, smoke, and moisture enter these parts and seriously continue the work of disruption.

It should be understood that plaster of Paris (sulphate of lime) is neutral, so that it would not be either nominally acid or alkaline in character; the acid (sulphuric) and the

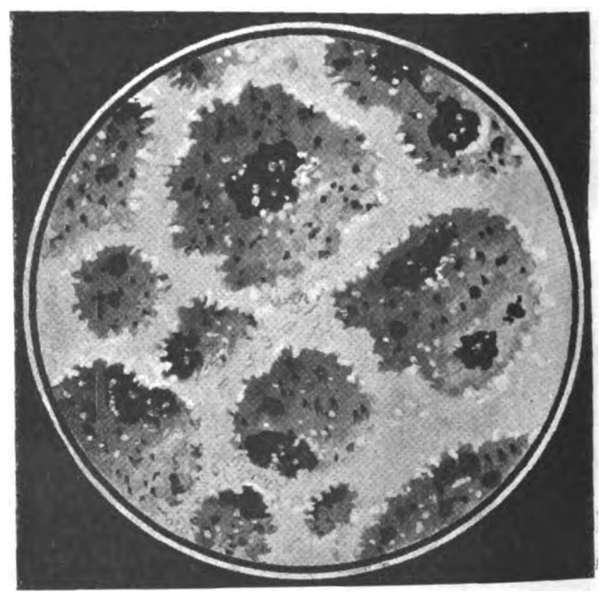


FIG. 4.—An internal view, about $\frac{1}{24}$ inch wide, greatly magnified, of plaster.

alkali (lime) being both exactly balanced with each other as it were. It is possible, however, that in suitable circumstances for the two factors to get separated, and then the acid would, by wandering, help to bring about corrosion of the plaster. The presence of caustic would help to free the acid.

Suppose that plaster shows a tendency to crack owing to

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internal weakness, and the vibration which is inseparable from modern conditions, due to traffic, &c., the sulphurous smoke from fires, besides fumes of indistinguishable kinds and untraceable sources, will gradually force their way in between the loosened particles. In the presence of moisture the sulphur ingredient is readily changeable into sulphurous acid and then oxidised to sulphuric acid. These fluids, by operating on the available lime, form sulphites and sulphates, thereby remodelling the arrangement of particles and being responsible for the separation of some and the consolidation of others. Undue brittleness is sure to be the direct outcome of such processes, with the result that gaps widen, pieces fall out, dampness reaches the wood, expands it, and forces the plaster away from it. Redrying of the wood simply increases the separation. Finally, the plaster falls off in lumps.

Size is used in connection with plastering in order not only to ensure thorough binding of the particles, but to prevent the lime from subsequently becoming absorbent. It is so liable to putrescent changes, however, that great care is needed in dealing with it. It does not take long for dense masses of mildew to germinate all over it, while internally it corrupts owing to the growth and multiplication of bacteria and fungi threads and spores. Its condition ought to be an absolutely pure one to begin with; but even then the occurrence of mischief is not precluded. Unless it is thoroughly well mixed with the lime it will exist later on as films on which moulds and kindred things will germinate, thereby being responsible for a continuance of the damage. If the slightest dampness can reach particles of size which have escaped complete mixture it will set up a series of putrefactive changes. The substances represented by the minute crystals previously described dissolve during admixture

The sand has practically no chemical effect on the plaster, nor is it acted on by any of the ingredients commonly present. But some of the substances of a siliceous character which are occasionally put in contain soluble silicates or allow these to be developed, and the consequence is that insoluble lime silicate occurs. This really assists the steadfastness of the plaster.

Among the many substances which are commonly incorporated with plaster are asbestos, infusorial earth (*i.e.*, keisulguhr), pumice stone, marble powder, and slag. It is impossible to deal with these things in a proper manner at present, but if they were quite pure they would not have any particular chemical effect on the plaster, which is exposed principally to other dangers. We can learn a great deal by making direct observations on various kinds of plaster work. I detached pieces specially for the purpose from ceilings and walls and illustrate the results of my examinations in figs. 4, 5, and 6. It does not matter what kind of plaster is broken open, we are sure to find it full of irregularly shaped cavities of the kind shown in fig. 4. This view represents the appearance in both vertical and horizontal sections. You see, as it were, deep cells, and at the bottoms and sides of these are black spots indicating the orifices of other empty spaces deeper in the substance. There we have proof that moisture can penerate throughout the cruder layers of plaster. It might be thought that the material in such dimensions as are delineated is too small for consideration, but that is not so. Although the amount of the whole circle could be pushed into a pinhole, a significant extent of modification can go on within it.



FIG. 5.—A piece of plaster, seen in edge view after being snapped apart, about $\frac{1}{25}$ inch wide, greatly magnified.

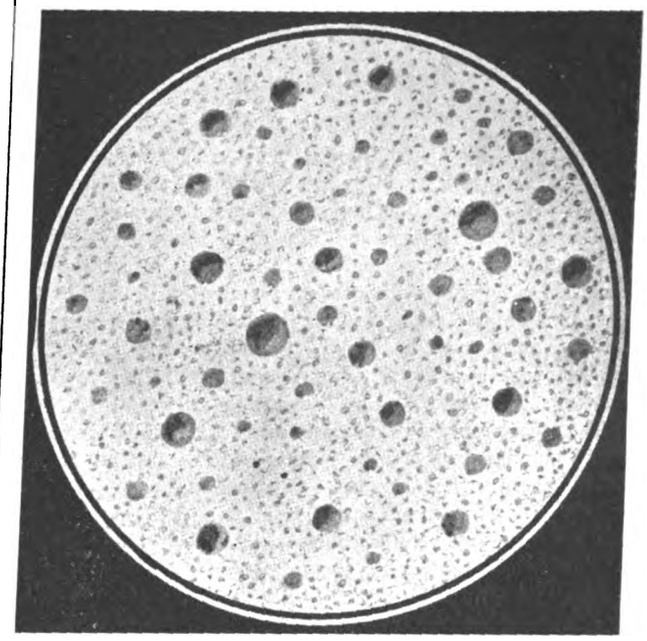


FIG. 6.—A piece of ceiling plaster, about $\frac{1}{25}$ inch wide, surface view, greatly magnified.

It must be borne in mind that changes of this kind are going on all over the plaster inside simultaneously. It is not a case of one pinhole, but of myriads side by side.

We see the steam issuing from a kettle spout. Hold a glass slide in this steam for but a mere second and a film is obtained upon it. Examine this at once beneath the microscope, and there will be evident hundreds of distinct, separate little globules, each of which by getting smaller and smaller to vanishing point brings about evaporation. In damp air the globules are too small to be seen, but in visible vapour there are about three or four thousand side by side in a line one inch long! Coalescence of the invisible molecules develops microscopic globules which still remain suspended in the air. Coalescence of these causes slight condensation into visible droplets, and these combine to fall as detectable drops.

The point I wish to emphasise is that when vapour finds its way into the cavities of the cruder portions of the plaster, each larger cell of the kind shown in fig. 4 contains quite a large number of globules.

These operate and re-vapourise more minutely alternately, according to the surrounding temperature. They convey disintegrating gases inside these cells and cause intervening partitions to crumble and modify two or more cells into one. A continuation of this process naturally causes serious decay.

By the way, to decide whether plaster is absolutely dry, cut out an oblong piece of coloured gelatin (such as sweets are wrapped in) and hold it to the wall or ceiling by means of a stick. If no moisture is present the film will keep its flat shape, but should the smallest degree of dampness exist its ends will curl over in a curious manner away from the plaster. It may be wondered why there should be these strongly defined empty spaces. The newly applied plaster is so dense that none can be found in it. But when drying sets in the moisture runs together as globular clusters, so that the particles are looser in some areas than between them, and while the latter get consolidated into partitions the former are left as spaces when the moisture vanishes.

The cavities in which masses of minute crystals appear, as in fig. 5, are angular, and are probably due to the subsidence of parts under the influence of sulphuric acid derived from the air, or evolved from the plaster of Paris.

The minute globules of moisture, when escaping to the surface, get uniformly separated by the air and upon evaporation leave the circular pores shown in fig. 6, having taken with them minute semi-hemispherical films.

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RURAL COTTAGES.

THE following correspondence between the Society of Architects and the Board of Agriculture and Fisheries will be of interest to many of our readers:—

28 Bedford Square, London, W.C.,
May 6, 1915.

The Right Hon. Lord Lucas, P.C.,
President, Board of Agriculture and Fisheries,
4, 5, 6, and 8 Whitehall Place, S.W.

ADVISORY COMMITTEE ON RURAL COTTAGES.

MY LORD,—My Council desires most respectfully to offer the following observations on the report of the Advisory Committee on Rural Cottages issued under the auspices of the Board of Agriculture and Fisheries;

The Advisory Committee has, it is stated, presented its report in a form which it suggests may be of service to those particularly interested in the building of labourers' cottages, in view of which the Committee has selected a number of working drawings and specifications prepared by architects, from which such buildings may be erected.

The report contains a warning against the indiscriminate use of standardised designs, points out that an important factor in economy is competent supervision during erection, and states that in many cases consultation with the builder will enable economy to be effected without sacrifice.

The report containing the selected designs and specifications may be purchased for 1*s.* 6*d.*; working drawings can be obtained for 1*s.* or 2*s.* per sheet, and specifications for 1*d.*

There is no reference in the report to the desirability of retaining an architect's services, and the natural inference is that such services are unnecessary and can be dispensed with.

Would it not have been in accordance with proper and safe practice and to the advantage of the public and in the best interests of the Board of Agriculture and Fisheries if this report, most useful in itself, had been accompanied by a definite reference to the necessity of retaining an architect's services in order that the object which the Advisory Committee have in view may be fully attained?

Local authorities, public bodies, and private building owners are already too prone to endeavour to eliminate the architect whenever possible; and my Council anticipate that one result of the publication of the report will be to accentuate this tendency, and to make it possible that the said plans and specifications may be so used that the object of the Advisory Committee will be defeated.

My Council consider that the issue of the report in its present form is most unfortunate from a professional point of view, more particularly at the present time, when the architectural profession is suffering most severely from circumstances caused by the war.

My Council most strongly protest against the precedent which is being set by the Board of Agriculture and Fisheries in this matter, and urges that the Board will give the points raised their careful and sympathetic consideration. If it is too late to make some addendum or additional recommendation to the present report, then my Council urges that such steps as may be necessary may be taken to ensure that in any further similar reports issued by the Board a reference as to retaining the services of architects may be included.—I am, your Lordship's obedient servant,

(Signed) C. MCARTHUR BUTLER, Secretary.

Board of Agriculture and Fisheries,
4 Whitehall Place, London, S.W.,
June 5, 1915.

No. A. 34502/1915.

SIR,—I am directed by the Board of Agriculture and Fisheries to advert to your letter of the 6th ult., addressed to Lord Lucas, on the subject of the report issued by the Advisory Committee on Rural Cottages, and I am to forward, for your information, the enclosed copy of a letter which has been received from Mr. Christopher Turnor, the Chairman of the Committee.—I am, Sir, your obedient servant,

(Signed) A. W. ANSTRUTHER,
Assistant Secretary.

The Secretary, the Society of Architects.

Copy of the letter from the Chairman of the Advisory Committee on Rural Cottages to the President of the Board of Agriculture and Fisheries in reply to the Society's letter.

May 27, 1915.

To the President of the Board of Agriculture and Fisheries.

MY LORD.—The substance of the Society of Architects' objection to the report of the Advisory Committee on Rural Cottages seems to be contained in the following paragraph of their letter:—

"There is no reference in the report to the desirability of retaining an architect's services, and the natural inference is that such services are unnecessary and can be dispensed with."

Considering that the sample specification in the report requires the whole of the works to be carried out "under the direction and to the satisfaction of the architect or employer's agent," thus assuming the services of a skilled supervisor, the Committee hardly think that the inference drawn is derived from the report.

The Committee would further draw attention to pars. 4 and 5, which lay stress on the need for the exercise of care and taste and for adapting the type designs to the local materials and the building traditions with a view to bringing the building into harmony with its surroundings; to par. 19, which emphasises the need for careful planning of the cottages; and to par 31, which speaks of the importance of a careful lay-out plan with a view to prevent the spoiling of our villages and hamlets by the building of incongruous houses in unsuitable positions.

They do not think these paragraphs suggest that the Committee wished to encourage the dispensing with the services of a skilled advisor.

The view which is strongly expressed in the letter from the Society of Architects, that the report may have the effect of causing less cottages to be designed by architects, is not shared by the Committee. Only a very small proportion of the cottages now built are designed or supervised by any professional expert. The Committee believe that this is because so few people realise how important are the many questions involved in cottage design, and how difficult it is to find a satisfactory solution within the available resources; and they anticipate that their report, by drawing attention to all these matters and showing that cottage design needs careful study if it is to be well done, will have the effect of inducing far more owners and authorities to take skilled advice than to dispense with it.

With reference to the suggestion that there should be in the report a recommendation to employ an architect, the Committee, when they considered the point, were met with the difficulty that other professions claim that the planning of cottages comes within their duties. Both surveyors and estate agents carry out this work, and many of them have made a special study of it; indeed, only a limited number of architects have given as much attention to this class of work as have many members of the other professions mentioned. In these circumstances, while the Committee sympathise with the view that cottages should be designed in all cases by those fully qualified to do the work, they do not feel that it is their function to determine that none but architects are so qualified, in face of the claims and practice of the other professions mentioned.

The Committee have endeavoured to make clear the importance which they attach to good planning and good design; they cannot believe that this can be otherwise than beneficial to the architectural profession. In the majority of cases, where the plans issued are made use of without skilled advice, they think it may be safely assumed that no architect would have been employed had these particular plans not been available.—Yours obediently,

(Signed) CHRISTOPHER TURNOR.

Copy of reply from the Society of Architects to the President of the Board of Agriculture and Fisheries.

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28 Bedford Square, London, W.C.,
June 30, 1915.

The Right Hon. Lord Lucas, P.C.,
President, Board of Agriculture and Fisheries,
4, 5, 6, and 8 Whitehall Place, S.W.

ADVISORY COMMITTEE ON RURAL COTTAGES.

MY LORD,—My Council has received from the Board of Agriculture and Fisheries, and has carefully considered, a copy of the letter from the Chairman of the Advisory Com-

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mittee on Rural Cottages, Mr. Christopher Turnor, dated May 27, addressed to the President of the Board of Agriculture and Fisheries by way of a reply to the Society's letter of May 6, offering the Council's observations on the report referred to.

I am directed by my Council to thank you for giving them an opportunity of seeing the Chairman's letter, and to say in reply thereto that my Council's observations on the report were made in the interests of architects, and not on behalf of the members of other professions or other skilled advisors.

To say that the sample specification contained in the appendix to the report requires the whole of the works to be carried out under the direction and to the satisfaction of the architect or employer's agent is beside the mark, and such reference is lessened in value by the alternative mention of the employer's agent, whom it would be unsafe to assume in every case would be skilled in the planning and designing of cottages.

The Chairman of the Advisory Committee admits that only a very small proportion of cottages are built or superintended by any professional expert, and deprecates the alleged suggestion that it is the function of the Advisory Committee to determine that only architects are qualified to design cottages in face of the claims and practice of other professions to do similar work.

My Council respectfully points out that what it suggested was that it is desirable that an architect's services should be retained, and not that members of other professions experienced in that particular class of work shall be prevented from doing it if the building owner prefers to consult them.

The fact remains that the Advisory Committee, in its report, does not specifically express the view that the building owner should retain skilled professional advice of any kind. Certainly it refers to the desirability of consulting a builder, but that appears to be in connection with securing economy by way of supervision, and it is not anticipated by my Council that the Advisory Committee wishes to convey the impression that a builder is necessarily a skilled professional advisor on questions of planning and design.

The Chairman of the Advisory Committee, in the concluding paragraph of his letter, confirms my Council's views that the issue of the plans may lead to their use without skilled professional advice, and my Council cannot agree with the suggestion that no architect would have been employed had these particular plans not been available.

The main points raised by my Council were, first, that the Advisory Committee had not suggested the desirability of retaining an architect's services in carrying out its recommendations; and, secondly, that the precedent set by the Board of Agriculture and Fisheries in this matter was unfortunate from a professional—that is to say, an architectural—point of view.

My Council respectfully submits that its observations on the report still hold good, and further it considers that an injustice has been done to the architectural profession by the publication of the report in its present form by a Government Department. Under these circumstances my Council proposes to send copies of the correspondence on the subject to the professional journals, so that those interested in the matter may form their own conclusions.—I am, your Lordship's obedient servant,

(Signed) C. MCARTHUR BUTLER, Secretary.

4 Whitehall Place, S.W.,
July 5, 1915.

DEAR SIR,—I am desired by Lord Selborne to acknowledge the receipt of your letter of the 30th ult., addressed to Lord Lucas.—Yours faithfully,

(Signed) ALEX. W. MONRO.

C. McArthur Butler, Esq., F.C.I.S.

OAK FLOORING IN A KINGSWAY BUILDING.

IN the King's Bench Divisional Court on July 8, Justices Avory and Low had before them the case of the Complete Wood Flooring Company, Ltd., *v.* King & Arnell, which was reported in *The Architect* of May 21 last. After arguments by counsel for and against the appeal on behalf of the Complete Wood Flooring Company, Ltd., against the decision of the Official Referee, Mr. Justice Avory, in delivering judgment, said there was a contract in this case to supply and lay floors in a new building for a fixed sum. The respondents, during the progress of the work, paid £250 on account of the contract price. It was now admitted that the contract was broken by the appellants in most, if not all, of the material respects to which it related. The wood was not of the quality or the nationality specified, and there were various other defects which were admitted to be breaches of the contract. In those circumstances the Official Referee had held that the appellants were not entitled to recover anything upon the contract, and his learned brother and himself thought the Referee was right. His Lordship, however, had been troubled by the counter-claim, because logically it would appear that if the Referee was right in holding there had been a complete failure to perform the contract, the respondents would have been entitled to recover the £250 paid on account of the work. If there had been a cross-appeal by the respondents as to the £250, there would have been great difficulty, in his Lordship's view, in saying that the Referee was right in his judgment on the counter-claim. His Lordship had felt that the very fact of the Referee giving judgment against respondents on the counter-claim was evidence that he must have formed an opinion or come to the conclusion that there was some implied contract on the part of the respondents to pay for the work to the extent of £250. There was, however, no such cross-appeal before them, and therefore they were not called upon to express any opinion about that part of the judgment of the Referee. His Lordship thought that in the circumstances, having regard to the care which was bestowed by the Referee upon this case, they ought not to infer that in giving judgment for the appellants in the action on the counter-claim that he drew any conclusion that there was an implied contract on the part of the respondents to pay £250 on a *quantum meruit* for the work done. That being so, his Lordship came to the conclusion that the appeal ought to be dismissed, and that the judgment of the Referee should stand.

Mr. Justice Low expressed agreement, and the appeal was dismissed with costs.

TOWN PLANNING IN NOVA SCOTIA.

NOVA SCOTIA has given a lead to the rest of Canada in town-planning legislation by the introduction of an Act which is in advance of anything of the kind in the world. Under the Act a town-planning controller is to be appointed for the Province, and a local town-planning board in every urban and rural municipality. No street can hereafter be laid out, or any sub-division made in any municipality unless the plans are approved by this board. Within three years every board must either prepare a town-planning scheme or set of town-planning by-laws with the following minimum requirements: The distance between the buildings to be not less than 60 feet and up to 100 feet on opposite sides of existing streets, and to be not less than 80 feet on new main thoroughfares, whatever the width of the street. This applies in respect of both new and reconstructed buildings. Land to be reserved for new main thoroughfares must not be less than 60 feet in width, and provision is made for allowing narrow streets of from 24 to 40 feet where not required for through traffic. The number of dwellings to be limited on each acre, all windows of dwellings to have adequate light and air, separate acres to be prescribed for dwellings, factories, stores, &c. The height of buildings may also be limited by the boards. The local boards have power to buy land, up to 200 feet in depth, on the frontages of new roads or reconstructed roads. The price of any land thus to be expropriated must be the market value, and no extra allowance is to be made for compulsory purchase. The Act has been drawn up in consultation with the Commission of Conservation, and immediate steps will be taken to put it in force in the province.

THE excavations on the site of the Roman town of Corstopitum, near Corbridge-on-Tyne, will be suspended during the continuance of the war. Begun in 1906 by the Northumberland County History Committee, they have from 1907 to 1914 been carried on by the specially formed Corbridge Excavation Committee with remarkable results. This year, however, all the labour which has usually been available will be needed for agricultural purposes or for the manufacture of munitions, and it has accordingly been decided that no work shall be done; but it is hoped that as soon as the pressure of the war is removed, operations may be resumed, as a considerable portion of the site still remains to be excavated.

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ROYAL SCOTTISH MUSEUM.

SIR THOMAS CARLAW MARTIN, LL.D., F.R.S.E., the Director of the Royal Scottish Museum, Edinburgh, in his annual report to the Education Department deals first with the position reached in the extension of the Museum. A substantial advance, though it does not immediately add to the public opportunities, is the completion of the new workshops, a part of the scheme which presented much difficulty, and, along with the new administrative block, for a considerable time barred the way to larger operations. The engineering plant is now installed in very favourable conditions, and the greater facilities afforded will have an important effect upon the construction work done in the Museum, especially for the department of technology. Progress with the first section of the extension designed to accommodate natural history exhibits has been seriously retarded by the shortage of labour and material caused by the war. There is, however, a reasonable expectation that three of the ten halls or galleries in course of erection will be available within the present year. One of these will permit of an enlargement of the present overcrowded animal hall in which the large objects stand so close upon each other as to render impossible a just appreciation of their form and dimensions. A second hall is intended for the use of students and persons engaged in research. To increase the accommodation of this students' room, it has been recently arranged with H.M. Office of Works to erect a light gallery along two sides of the walls to which the workers in the room may have access. It is hoped by a suitable arrangement of tables, partitions, lockers, and apparatus to create the conditions of convenient and successful study. The zoological type collection, to which the third hall is appropriated, will also be arranged with a more precise regard to the requirements of study, the floor space obtained permitting of this; and as it is to be connected with the students' room by means of a spiral stair, there will be concentrated in this quarter of the Museum a working apparatus of instruments, reference books, and specimens from the systematic use of which much may be hoped.

Work upon the remaining parts of the natural history extension and the new wing of the great hall proceeds slowly. It has to be regretted, Sir T. Carlaw Martin continues, that there is no immediate hope of the entire extension being treated as a single necessity and of building operations being carried on without arrest from the University along the Lothian Street frontage up to and including the east side of Brighton Street. For reasons that must be regarded as imperative, the second and third of the three sections in which the extension was originally planned for execution cannot be undertaken at present. The part which is now very gradually approaching completion forms about a third of the whole project. One of the consequences of arresting the work with two-thirds undone is the prolonged exposure to the public eye of an unfinished architectural design. A handsome stone frontage carrying the ornament of an open colonnade will ultimately arise; but owing to a deflection in the line of street, giving the area to be built over a wedge-shaped character, the amount of dressed stonework visible at this stage bears a small proportion to the area opened up; hence there is a considerable gap in the street line, through which the inhabitants have the rather unsightly spectacle offered to them of extensive masses of the irregular brickwork that in course of time will become the interior walls of the Museum. Particularly regrettable is the necessity for deferring work upon the second section, as this contains the lecture-theatre. No means at present exist of accommodating a seated audience; yet a lecture-theatre is an important part of the equipment of a museum. The audience, in numbers often approaching 500, which assembled twice a week during the winter months for the lecture-demonstrations by officers of the Museum would have been denied this popular form of instruction altogether, but for the courtesy of the University authorities in lending a commodious hall. It must be repeated that the postponement of the main part of the extension, as first schemed and approved, leaves without remedy the congestion in all departments of the Museum.

As with all similar institutions, the war has adversely affected both the general attendance of visitors and the attendance of students. The depletion of the University classes sufficiently accounts for the comparatively unfrequented state of certain galleries where in normal times students are accustomed to work in numbers. This is equally true of mining, dental, pharmaceutical, and natural history students. Still, there are some satisfactory features. Owing, no doubt, to a more favourable arrangement of exhibits, the number of students of design to whom copying tickets are issued shows a marked increase. It is observed, too, that classes of pupils under a master of drawing have resorted to the Museum for subjects. From both causes the issue of copying tickets has risen from 776 in 1913-14 to 1,353 in 1914-15. There is reason to believe that the interconnection of school and Museum has been considerably strengthened during the year. A decline in the statistics of class-visits was to be expected, as in the preceding year there were particular attractions which could not be repeated. But in the later months of 1914-15 the numbers rose satisfactorily. The number of classes was 348, and the number of pupils 8,877. No less gratifying than the gain in numbers is the gain in definiteness of teaching. The Director acknowledges the efficient aid rendered by the late Mr. Vallance in his position as demonstrator, and remarks that it is scarcely open to question that intelligent study of the contents of the Museum, carried out independently, must have been greatly furthered by the demonstrator's work. The demonstrator's services had been in great demand, and the results in the matter of scholars' visits had been particularly notable. Regarding another form of direct educational effort exerted with singular success by the Museum officers for three succeeding years, the year 1915 has been unfortunate. As the Museum, when open at night, shows a large expanse of luminous surface, it became imperative in war conditions to close at dusk, and, accordingly, to abandon the programme of thirty winter evening demonstrations which had been put in type. Last year these evening lecture demonstrations were attended by over 7,000 persons. They will be resumed on the return of peace.

Dealing with the acquisitions of the year, the Director states that, from a historical and artistic standpoint, the most notable additions to the department of art and ethnography are three excellent plaster reproductions of the effigies of knights in the Temple Church, London. Of Purbeck marble, the original effigies were sculptured by the cathedral carvers of the early thirteenth century, and they represent the features and defensive clothing of prominent men of the day. The three effigies are to be supplied with appropriate bases reflecting the Gothic period.

In the textile section an innovation is the collection of old military and other costumes which have been mounted on lay figures and displayed to the best advantage. They serve to recall the times of the Georges and Victoria, making a more direct appeal than is possible with works of art of greater intrinsic value. A rare suit of old pattern is that of one of the Pope's Swiss Guards. Turkish and Oriental suits are also shown, including a remarkable Japanese suit of a type long discarded. The officers of this department have also completed the rearrangement of the valuable collection of arms and armour, besides adding features that enhance it.

Among objects of artistic and intrinsic worth added to this department may be mentioned a fine collection of Japanese carvings in ivory, bequeathed by the late Mr. John Jordan, Edinburgh. These pieces number 289 in all, and are remarkable examples of ingenuity in combining human and lower animal forms, generally with a highly humorous idea, sometimes with a merely grotesque intention, always with an exquisite skill in execution. The Museum had no previous acquisitions of this character. The Japanese section has been further augmented by a fresh consignment of antiquities from Dr. Gordon Munro. Acknowledgment is also made of a contribution by Mr. J. D. Hamilton Dickson and Mr. Genjiro Yamazaki, both of Peterhouse, Cambridge. This is a catalogue of Tsuba—*i.e.*, Japanese sword guards, part of the Japanese collection of objects of art.

The Egyptian Hall has again been enriched by the generosity of the Hon. John Abercromby, LL.D. In recognition of his support of the British School of Archæology in Egypt, the Museum has received a beautifully modelled fish of the Nile in gold plate, along with some gold bead and variegated stone necklaces, all of good quality. These date from the Twelfth Dynasty, or about 2500 B.C.

The Lindsay-Carnegie bequest fund has enabled 204 coins to be added to the collection, and in course of time must become one of very considerable value. At present it comprises 3,522 pieces, and is rich in Oriental coinages.

The total attendance for the year was 322,317. The average annual attendance for the last five years has been 404,826, and the average daily attendance for 1914 works out as follows: Sundays, 1,436; week-days, 794.

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INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS.

THE forty-second annual meeting and Road Conference of the Institution was held in the Lecture Theatre of the Institution of Civil Engineers, Westminster, on Thursday, June 24.

After some preliminary business, Mr. H. T. Wakelam, M.Inst.C.E., County Engineer, Middlesex, was inducted as President for 1915-16. From his presidential address (which appears in full in their *Journal*) we give the following extracts:—

THE PRESIDENTIAL ADDRESS.

The term "Engineering," as you all know, covers not only the construction of engines and machines, but embraces, also, the comprehensive field of docks, harbours, reclamation embankments, railways, canals, waterworks, sewage works, rivers' works, bridges, and roads; and also hydraulic mining, electrical motor and marine engineering.

The work of the engineer covers, therefore, an extremely wide field, the constant extension of which renders almost every department of physical science a necessary and fundamental part of a course of education, founded upon a proper basis of mathematics, for those entering the profession.

To a theoretical preparation, there must, before a man can be said to be thoroughly equipped for his work, be added a sound practical training in the particular branch of the profession he chooses to follow, or wherein to specialise. It is a "long, long way" to final success, but in this way only can an engineer hope to succeed in his work. Such a training will enable him to bring to bear that thought, concentration, and economical adaptation, so necessary for that inventiveness, and accommodation to circumstances, which many members of this Institution have so skilfully displayed in the past, and which have been the means of helping them to the high positions they hold in the profession. The measure of a man's theoretical knowledge is proved by his success before a board of examiners, but practical experience can only be obtained in the workshop, and on works of construction, where a man will, if at all of an observant nature, quickly see how, and where, his theoretical ideas require modifications to meet actual constructional conditions. Whilst I think it is absolutely necessary for a sound theoretical training to be afforded to beginners in the profession, I must confess that I have a sneaking liking for the man who possesses ideas prompted by practical work.

If I may be allowed to address a few words to the younger brethren, I would say, select as models two, or three, of the more successful practitioners of the Institution, and follow their examples. By so doing, success will probably ensue. "Rome was not built in a day"; neither will the higher positions in the municipal and county engineering world be won in a day's work. Such positions are, however, always open to those who care to take the trouble—as our American friends would say—"to get there!"

I would also impress upon the younger members the necessity of visiting works during the preparation of materials and during the actual constructional operations. The measure of a man's knowledge cannot always be judged from the length of his experience. For instance, two men may go through exactly the same job and, at the end, one of the two may show a much greater knowledge of both its principles and details than the other. This arises from the degree of observation exercised by both men. Where one fails in this, another succeeds. Much can therefore be gained by observation, and the more visits that are made to works in progress, the more knowledge will be gained by the observant student. In this connection it would, I think, be well for the junior members in each of the districts of the Institution to band themselves together and arrange visits to works in progress on the lines of the visits made by students of the Institution of Civil Engineers.

Whilst offering a word of encouragement to those juniors who have already started their professional careers, it would not, perhaps, be out of place (especially so as there are laymen present) if I also tendered a few remarks on the advantages of the engineering profession. With the world power of England—such as is held by no other nation—its vast possessions, its interests and influences, there is an almost unlimited field for a display of energy by men who possess constructive ability and capacity. In comparison with other professions, engineering offers many opportunities for men to gain not only a good living but to rise to positions of eminence in life—positions of which there are none of more utility.

The most successful engineers have been those who have been decisive and courageous in their views, and who have possessed tact and capacity for hard work. In addition to these essentials, a constitutional condition, sufficient to withstand all kinds of weather and physical and mental strain, form necessary attributes if a man is to succeed.

With regard to the scholastic work of a boy desirous of entering the profession, I personally think that such a boy, until he attains the age of sixteen or seventeen years, should be well grounded in mathematics, mechanics, physics, chemistry, and geometrical drawing. A boy at the age of seventeen who can pass an examination equal to the standard of the matriculation examination of the University of London should (provided he continues evening classes during his pupilage) very quickly make headway, given the attainments and attributes I have already referred to.

Should it be within the power of the parents to take a boy from school, say, at the age of sixteen, and send him direct to an Engineering College to take a science degree in engineering, or to an Engineering School provided with laboratories and workshops, it would add greatly to his advantage. He would in this way combine theoretical study with practice of the kind he would obtain in an engineering works. This knowledge should fit the boy for the work he would afterwards be called upon to perform in connection with his pupilage in a manner satisfactory to himself. And would remove, to a great extent, the feeling of hopelessness, which often assails some pupils when asked to proceed with work which to them appears both abstruse and difficult, but which in reality presents no difficulty to those who have been sufficiently well grounded in their preliminary studies.

On the other hand, young men who have received a College training must not forget that there are many things which they cannot have learnt during their College course, and that it will take years of practical experience to complete their engineering education and enable them to take up responsible positions.

An artistic draughtsman who lacks that constructional knowledge which will enable him to prepare a sound specification explanatory of his work will not be able to keep pace in the world's competition with the man who can prepare a fairly good drawing with a specification fully explanatory of the practical work he desires should be carried out.

Going briefly into the history of engineering, we find that one of the first works of magnitude was carried out by those of whom we speak as "the ancients." It was no less a work than the construction of the canal uniting the Red Sea with the Nile. That canal, we are told by Pliny, was originated and begun by Leostris. Others say that the work was carried out by Necos, and finished by Darius I. B.C. 525. To whomsoever the work may be properly assigned its existence shows that engineers were actively at work many centuries ago.

As one of the first engineering works of which we have an authentic record was in connection with the Nile, it may not be misplaced if I recall the fact that within recent years a stupendous engineering feat, known as the Nile Dam, was carried out across the same river with which work a present eminent member of this Institution was conspicuously connected.

Previously to the eighteenth century there were many celebrated undertakings carried out by engineers, among them being the dome of St. Mary, Florence, by Brunelleschi; and the dome of St. Peter's, Rome, by Michael Angelo. Other great engineers who practised centuries ago were San Michalin, the supposed inventor of the military bastion system, and Pagan and Vauban, who were both celebrated in their different branches of work.

During the eighteenth and nineteenth centuries, and also in our own time, there have been many successful engineering achievements, of considerable magnitude, connected with which, during the more later period, both past and present members of this Institution were engaged. In regard to some of the achievements for which members have been responsible, one may refer to large extensions of the main drainage works of the Metropolis; the main drainage works of Frankfort-on-the-Main; the supply of water from Wales to Liverpool; the supply of water from Wales to Birmingham; and the additional supplies of water to London. The Manchester Ship Canal, the Forth Bridge, the Tay Bridge, the Tower Bridge, the Simplon Tunnel,

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the Severn Tunnel, the Mersey Tunnels, and the Thames Tunnels, and many other works comprising vast undertakings and expenditures have also been carried out within comparatively recent times.

The Victorian era saw many of the large trunk railways and canals of this country brought into operation, while it appears but yesterday that the Great Central Railway and several of the large Metropolitan tube railways were completed and opened to traffic. The original construction of railways in this country gave a great impetus to the work of the engineer. Some of the undertakings which made such men as Stephenson, Telford, Brunel, and others famous are the bridge over the Tyne, the bridge across the Menai Straits, and the tubular bridge at Saltash, which monuments appeal to us to-day.

Since the passing of the Public Health Act, 1875, a sum greatly exceeding £100,000,000 (roughly estimated from Returns) has been expended in connection with the disposal of sewage and water supplies in England and Wales alone.

That the expenditures have been justified and warranted is amply proved by a glance at the Public Health Statistics which have been compiled since the date of the passing of that Act. The returns show a very large decrease in the annual death-rate since that time. The diminution in this connection is, in itself, a sufficient justification for the expenditures, apart from the comforts and cleanliness experienced, and apart also from the amelioration of the poorer classes from the dirty and filthy surroundings which obtained in many parts of our large cities and towns previously to the passing of the Act of '75.

This Institution was first started in the year 1873, and it may, I think, lay claim to being the pioneer of the movement which has proved so eminently successful in the interests of public health, and to the lion's share of credit for the improvement and life-saving efforts made so manifest in the statistical returns I have already referred to. Long may such efforts continue!

The question of local improvements for the well-being of the working classes is, to my mind, a very important subject, and housing schemes for their welfare should be fostered, advanced, and supported on every occasion. The Housing Acts are important measures, and by constantly advocating the adoption of their provisions the members of this Institution will still further add to the advancement and health-giving surroundings of the community. Environment in daily life has great influences for good or evil.

In connection with the Housing (No. 2) Act, passed during the last Parliamentary Session, the National Housing and Town Planning Council have published a memorandum of value, giving, among other things, details of, and the clauses relating to, loans to be granted. I commend the memorandum to those members who, at present, have housing schemes in hand. I would also commend to the notice of those members of the Institution from rural areas who are dealing with the housing problem, the model plans for cottages, which have received the approval of the Board of Agriculture and Fisheries, and of which copies can now be obtained direct from Messrs. Wyman & Sons, Fetter Lane, or through any bookseller. With regard to the proposals of the kind for rural districts, the President of the Local Government Board offered, a short time ago, some interesting remarks. It has been said that cottages in rural areas could not be built, and let, to give any return of interest at anything below a rental of 5*s*. per week. Mr. Samuel's view is that if the agricultural labourer cannot afford to pay a rental of 5*s*., there are others, in almost every village, such as policemen, postmen, railwaymen, carpenters, blacksmiths, and men of other occupations who could afford such a rental, and by building new cottages which such people may occupy it would free the cheaper buildings in which they now reside for occupation by their poorer neighbours. Mr. Samuel's suggestion should receive the most careful consideration.

During the last fifteen or sixteen years great changes have manifested themselves in the methods employed in connection with road maintenance and construction. The changes have been brought about by the enforced requirements to sustain the traffic of the large numerical increase in mechanically propelled vehicles now using the roads of the country.

It seems but yesterday since the first trial run of motor-cars to Brighton took place. I well remember the start of some thirty-three cars at ten o'clock in the morning from the Hôtel Métropole, Northumberland Avenue, in November 1896, when many of the onlookers made fun of the (to them) snorting monsters, which emitted stinks of twenty horse-power, and for which monsters many prophecies to the effect that they were doomed to failure were made. After a somewhat unexciting contest a few of the cars arrived at Brighton at a late hour the same day, while others arrived the next day, and others not at all. There were innumerable stoppages on the way, and much jeering from spectators along the route. How different to-day! Thanks to the motor engineer, cars have been so improved in the course of a few years that the Brighton journey can now be comfortably done in a little more than two hours.

At the same time the motor engineer, by introducing cars, was primarily the cause of the rapid deterioration which took place in connection with the carriageways of this country. As a set-off he has also primarily been the cause of the remarkable improvements, to be seen on all sides, in connection with the roads generally throughout the kingdom. When it was seen that the motor-car had come to stay, steps, from a road point of view, had perforce to be taken to cope with its requirements. The result has, I venture to say, been most satisfactory, as it is now admitted by experts on the subject from foreign countries that our roads, taken as a whole, are the best in the world. This despite the fact that during the last two years especially the endeavours of the road engineers of this country have been rendered infinitely more difficult by the extraordinary stress of the more modern vehicle and motor omnibus. In this connection the Government decided a short time ago to appoint two committees, one to consider the technical aspect of the question of damage to roads by such vehicles, and the other to consider the wider question as to the proper payment, if any, to be made by their owners towards the upkeep of the roads they use. Road authorities have no desire to throttle either commerce or trade; their only wish in this connection being that a settlement on a fair and equitable basis in the general interest shall be arrived at.

There are factors which will always govern road construction and maintenance in this country. Among them may be mentioned climatic, economic, and supply-and-demand conditions, which are all applicable, in varying degrees, to the different topographical and geographical areas of the kingdom. In discussing and considering the road question, these conditions, with other local circumstances, must be borne in mind. A comparison as to cost, method of repair, &c., of roads in the South of England, for instance, with roads in the North is no guide as to procedure, neither is it fair to compare systems of upkeep of roads in the Eastern Counties with those practised in the Western areas.

There is still room for thought and consideration in regard to the planning of arterial and other roads; the classification of roads; the maintenance of roads; the improvement of existing highways and bridges; bituminous methods as now practised; tar-painting road surfaces; the use of mechanically propelled vehicles *v.* horse-drawn vehicles for road purposes; road signs; the restriction and control of heavy traffic, both as regards weight and speed; experiments and tests of road materials; local administration; and economic procedure.

As regards the question of "road classification," some of you will remember the suggestion I made in a paper submitted to this Institution as far back as June 1906 as to the necessity for a general scheme of the kind for the whole of the country. It is satisfactory to all of us, and to me in particular, that such a scheme is now being formulated by the Road Board, which scheme will, I hope, soon be definitely settled and working satisfactorily.

That paper contained also another suggestion to the effect that subsidies should be supplied from funds provided by the Government for the particular purpose of assisting County Councils generally to make grants towards roads of different classes. A consummation of our hopes in this connection will, I trust, be realised directly a favourable opportunity arrives, and the Treasury finds itself in a position to make grants for the purpose.

In connection with "economic procedure," I think that if road engineers would look a little more into the question of "Cost *v.* Life" before deciding upon the kind of materials they propose recommending to their authorities, an elimination of "the chaff from the wheat," so to say, would quickly ensue. When it comes to be remembered that every single additional penny expended per square yard per annum on the maintenance of the roads of England and Wales, added to the roads' bill, means an additional million of money to be annually found by the ratepayer, the point

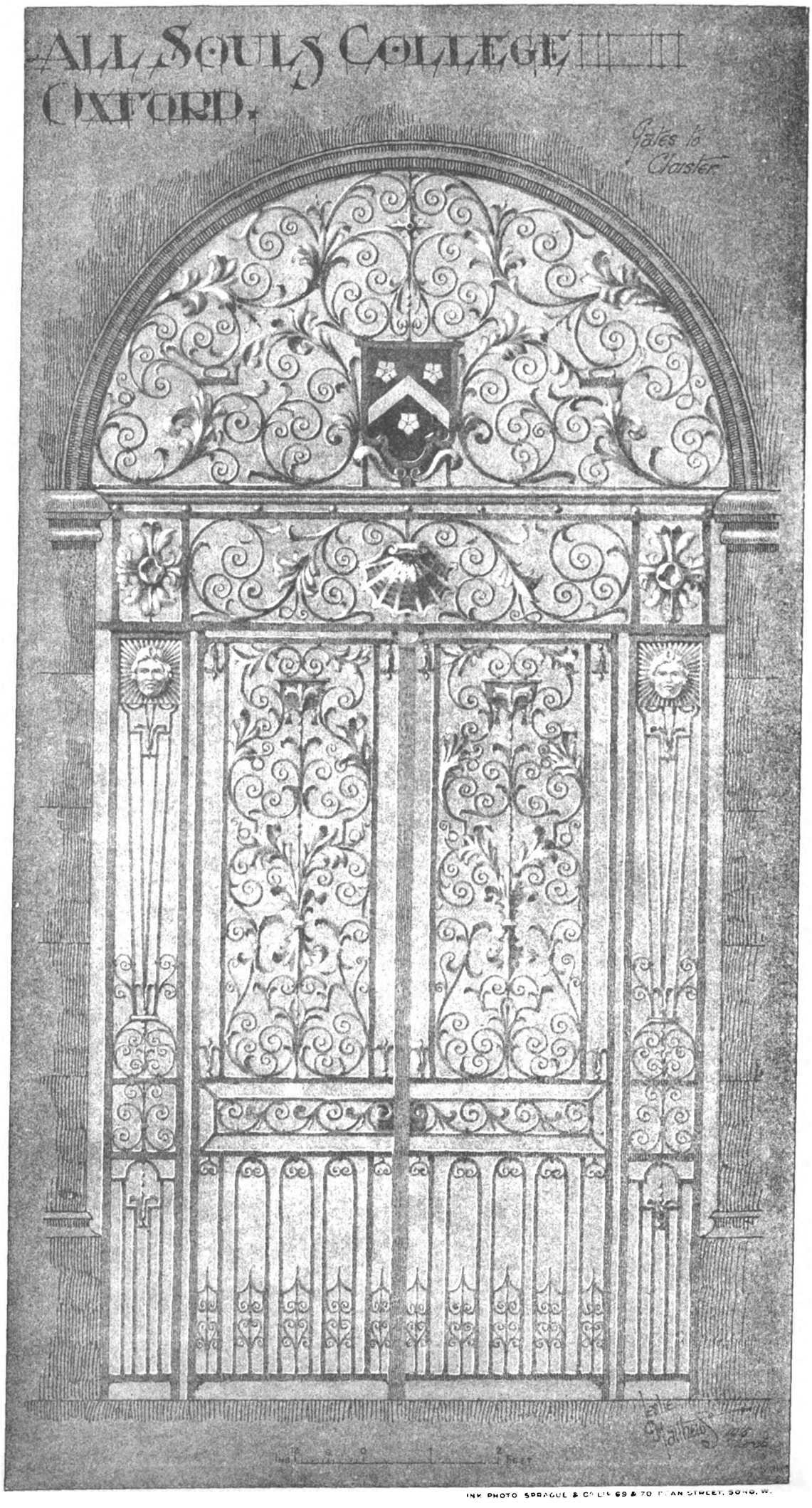
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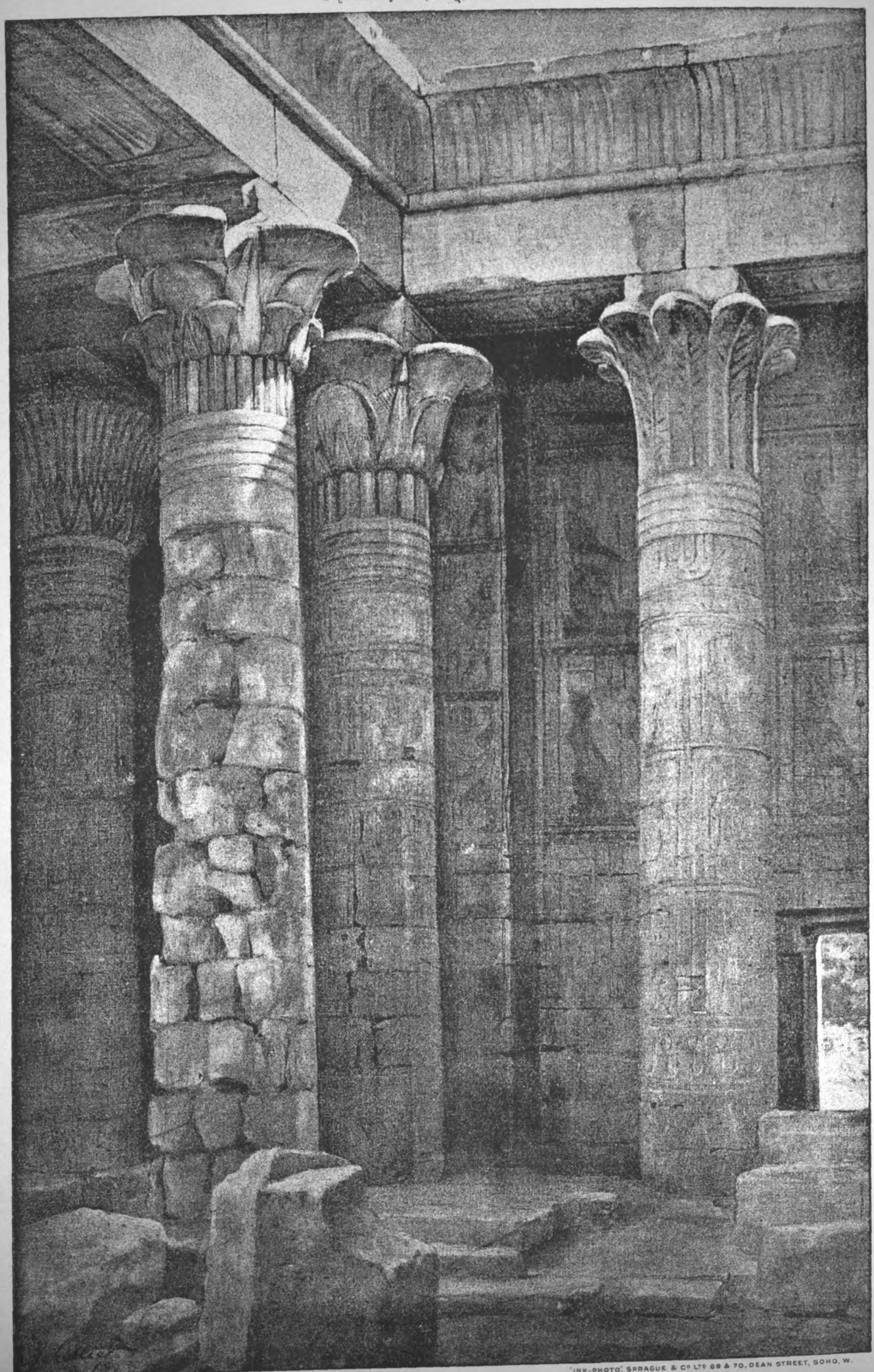


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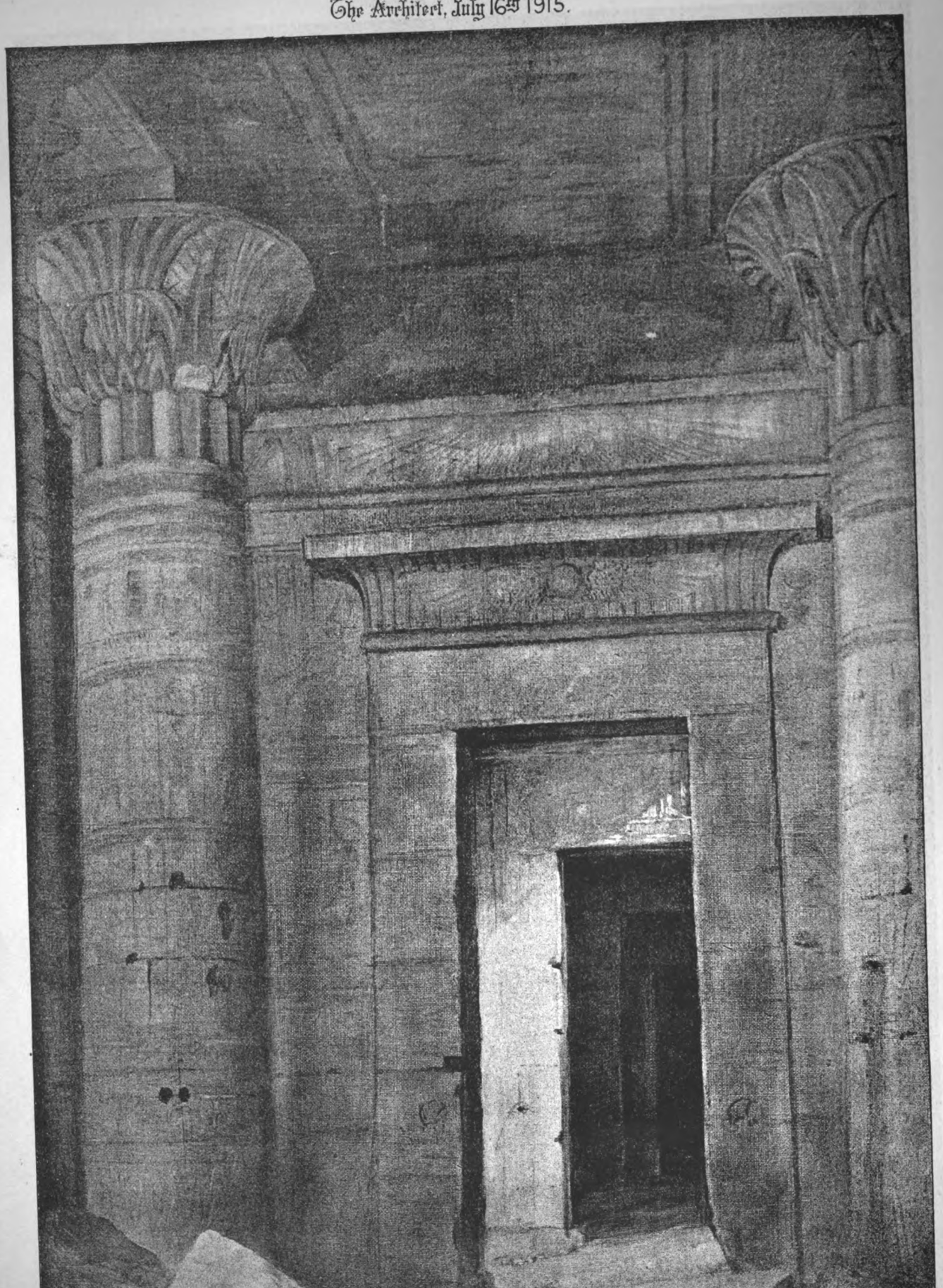
THE GREAT TEMPLE AT PHILÆ

From a Painting by the Hon. JOHN COLLIER.

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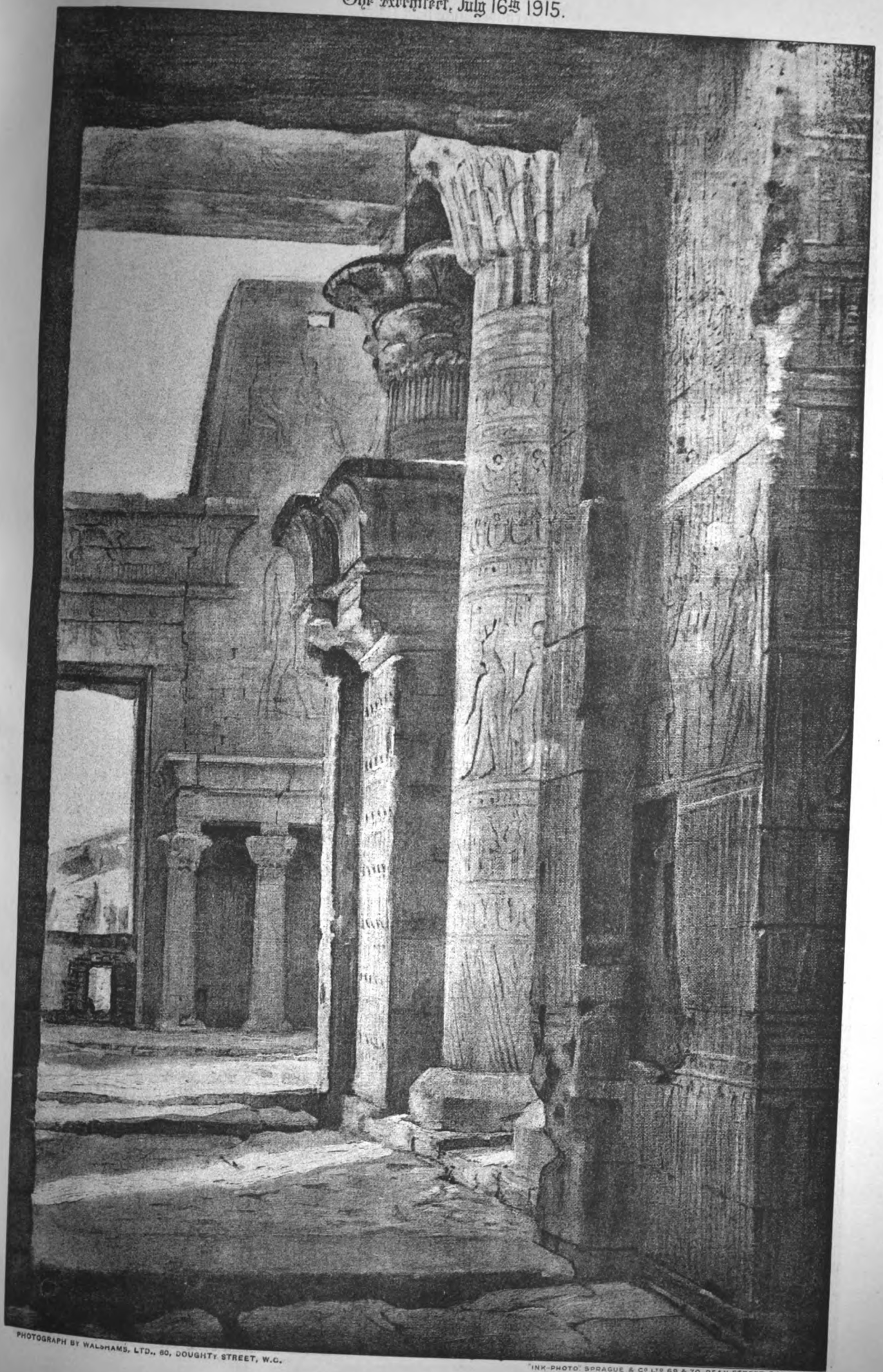
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DOORWAY IN THE TEMPLE AT PHILÆ.

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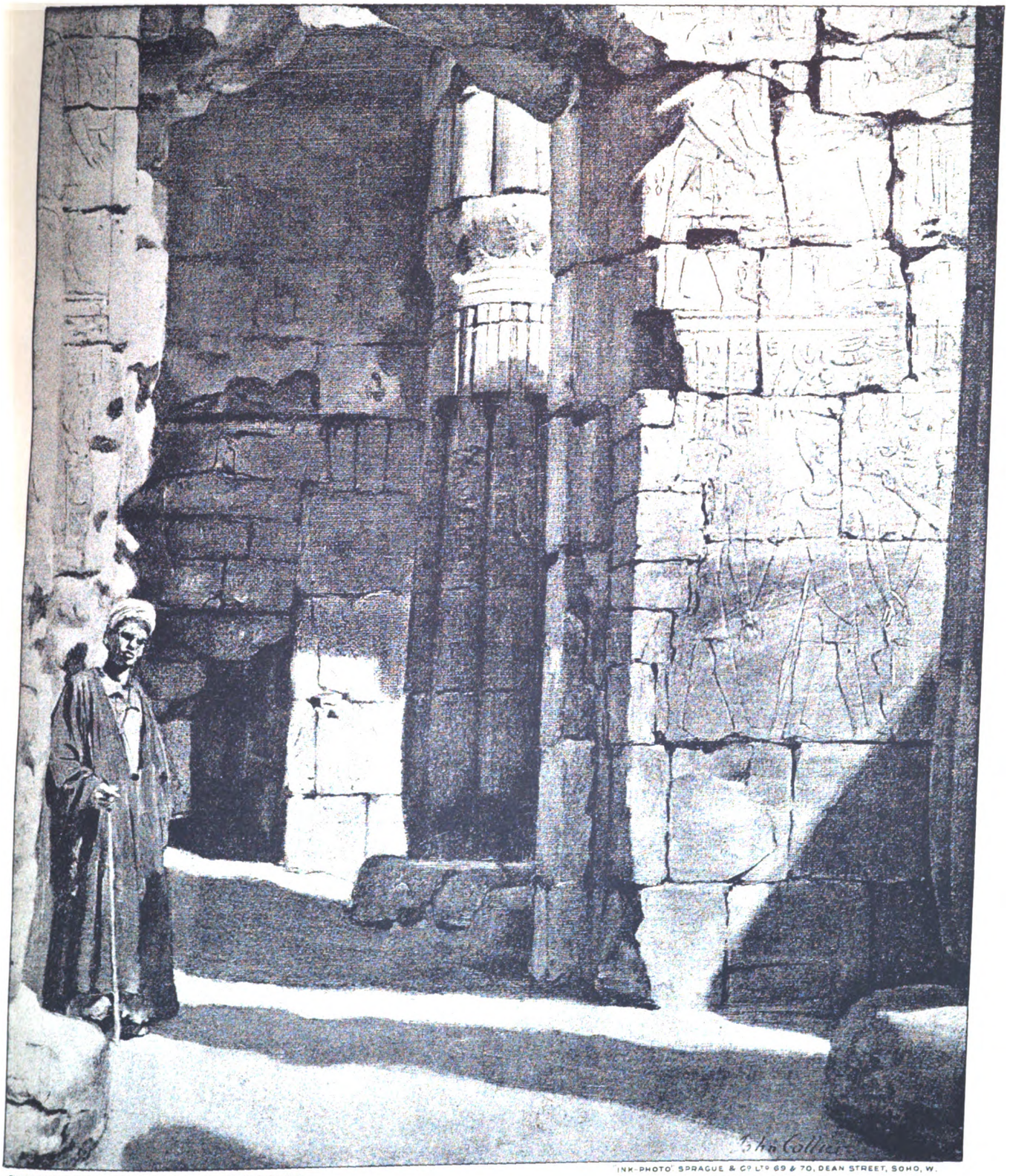
THE TEMPLE OF EDFOU.

From a Painting by the Hon. JOHN COLLIER.

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IN THE TEMPLE OF LUXOR.

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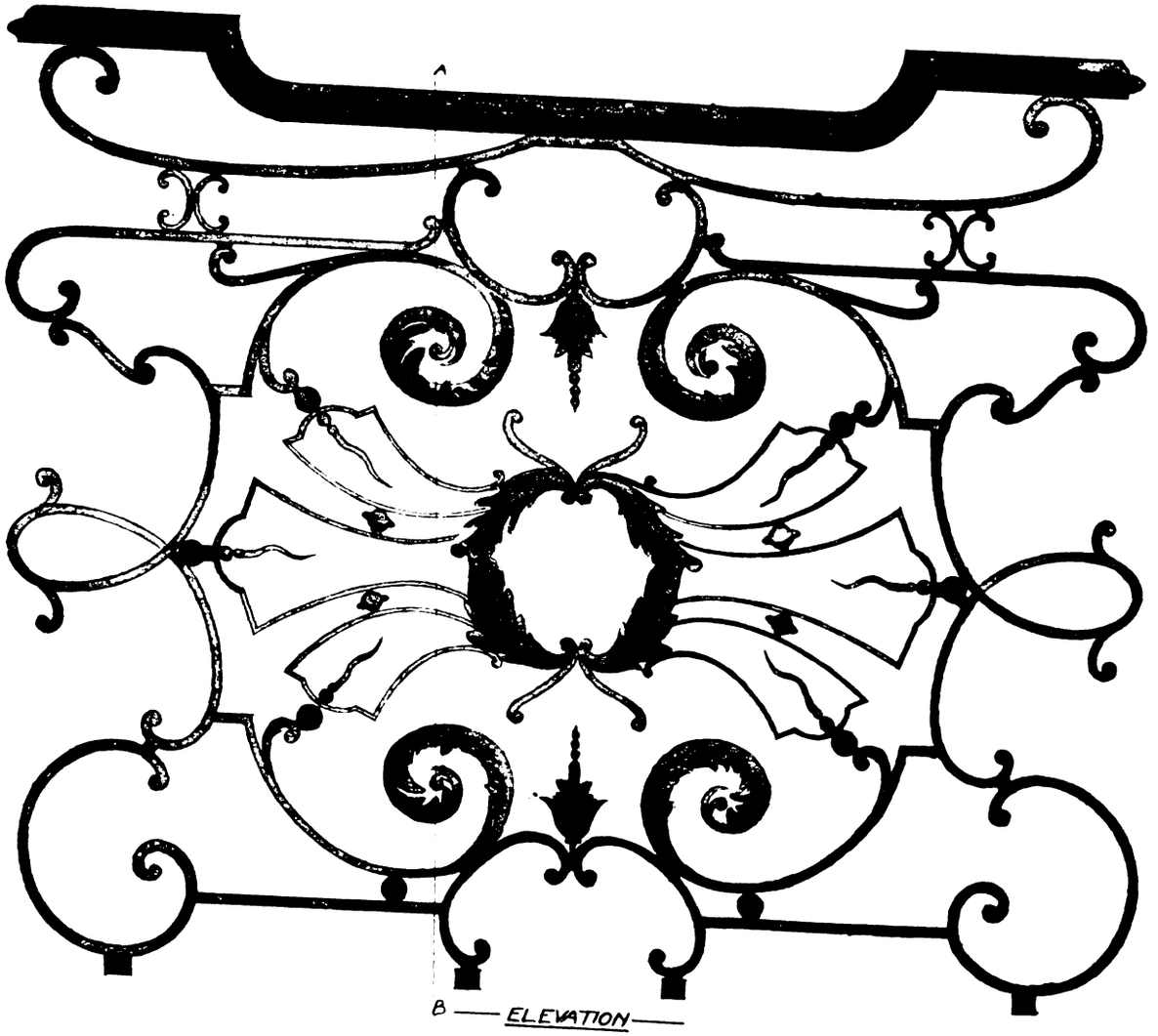
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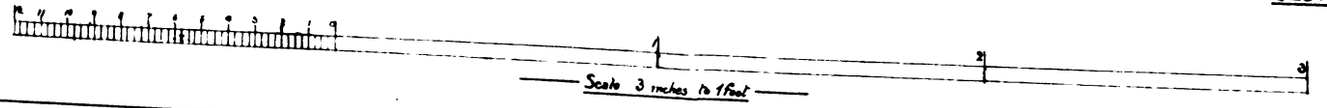
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SECTION AB



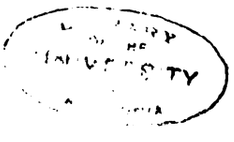
J.A. Whittick
March 1915

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

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The Architect, July 16th 1915.

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of "Cost v. Life" of road materials will be seen to be the most important monetary factor to be considered in connection with local government.

In a paper submitted by me to the Institution in June 1906 I mentioned the fact that there was then a great want of a material for road surfacing which would afford a life commensurate with its cost, and would come, in price, between creosoted wood paving and ordinary tar-painted water-bound metalling. This problem has not yet been fully solved. Although this be the case, there are now several materials on the market tending to this end, and I am constrained to believe that, by the efforts of the members of this Institution, jointly with those of the analytical chemist and the contractor, a full solution of the problem will be forthcoming.

You will agree when I say that a codification of the different Highways Acts now in operation should take place at the earliest moment. So much overlapping as at present exists in this connection is regrettable.

We all welcome the request now being made by the County Councils' Association to the Local Government Board for general regulations to be framed to deal effectually with the construction of road vehicles; the number of passengers and weight to be carried; the testing and licensing of drivers; the mechanical fitness of the engines, gear, &c.; the routes to be followed; and any other matters which will tend to secure proper conduct on the part of the drivers and conductors of vehicles plying for hire, and for the safety of the public.

Next to the "road question" I think that of "Town Planning" has, during the last three or four years, been most in the limelight. Town planning is an engrossing subject, and the agitation in connection with it has probably done more for the education of the municipal engineer in regard to the requirements and beautifying of towns than any other project during the annals of the Institution.

In mentioning the question of town planning I would repeat the observations I made at the annual meeting at Cheltenham last year in regard to arterial roads, which roads must be considered to form an indispensable part of town planning. As I said at that meeting, the lines of all proposed arterial roads should, to my mind, be laid down and finally settled before town-planning schemes are decided upon. The latter could then be superimposed on the proposed arterial lines, so to say, and so form a complete whole, instead of having some localities dealt with under the Town Planning Act, and isolated from the main routes, which, undoubtedly, will be the case if towns are laid out before the main arterial roads are settled.

SCHOLARLY ARCHITECTURE.

If the "man in the street" could be induced to take an intelligent interest in "reasoned" or scholarly architecture, says Mr. Paul Ogden, F.R.I.B.A., in a contribution to the Building Trades Supplement of the *Manchester City News*, the general demand for such would arise. From this desire a demand for better setting would follow, which better setting would include wider streets, larger squares, and the formal planting of trees, the introduction of grass-covered areas, and probably some greenery on the buildings. Some will say that we can do with indifferent architecture and building so long as we have trees and grass; all will agree. However, we had better have both good architecture and good setting. Incidentally it should be remembered that trees and grass arrest dust.

It is not possible to define clearly what is known as architecture; it is easier to describe what may be included in scholarly architecture, such as the study of the construction, principles, and features of any one style at its zenith and the right and proper adaptation of such to modern buildings. Consequently "freak architecture" is avoided by scholarly architects.

The Use of Ornament.

Scholarly architecture does not accept the assertion that ornament is essential to architecture, but it does admit that ornament is attractive, and may be what is called applied. There are serious difficulties in the application of ornament —if the word enrichment is used perhaps the function of ornament will be better understood. The enrichment or ornament, in its application, must not interfere with the function of the object decorated—figures, both human and animal, should be put in natural situations. Do not put Greek goddesses in chariots in relief on ceilings; if you have a penchant for such treatment put them in a frieze. Do not put decorative objects in perspective on a floor; a floor should not only be level, flat, and comfortable to walk upon, but should also look it. Do not treat walls by any other method except that known as "flat" (no perspective). Do not paint out your walls with such things as landscapes; such pictures should be in frames, separate from and hung on the wall. You ought to have the natural desire to know that it is there, supporting the superstructure and enclosing your room. You will, if you look everywhere around you, find many "dont's" and regret they have been done, and so interest yourself in matters relating to applied ornament.

Some Suggestions.

What a great opportunity there is at the present moment to illustrate in the friezes of our public buildings a permanent historical record of the present war. This could be done in painting or in relief, or in both.

It is stated above that scholarly architecture "does not accept the assertion that ornament is essential to architecture." Scholarly architecture contends that it has nothing to do with "likes and dislikes," but has everything to do with the truth in regard to the reasons for likes and dislikes. It endeavours, amongst other matters, to prove that rhythm and proportion are essential to higher architecture, and that there is some analogy not only to music but to all compound bodies which have simple, relative, proportion elements. It tries to answer such questions as "Why is equal spacing satisfying and unequal spacing irritating?" It looks upon the former as it does upon an uneven step, a limp, or an irregular pulse, as something that should not be. It obeys the law of equal halves as does healthy nature.

Examples in Manchester.

There is a warehouse in York Street (Bannerman's) which is practically devoid of ornament. It will on the first visit shock "the man in the street"; he will say "it is like a mill." If he will study it patiently and compare it with mills and other plain buildings, and after a time with some enriched buildings, he will conclude that it has merit, notwithstanding the fact that it is almost devoid of ornament. There is a studied proportion of the windows; they are the same width, but as they ascend they are less in height and fulfil one of the principles—viz. that of diminishing relative proportions. This treatment avoids the appearance of top-heaviness. For the sake of stability alone storeys as they ascend should be less in height. Some will assert that this is the reason why this building is so satisfactory; others contending that it is due to rhythm and proportion. The architect of this building made the ground floor windows the highest of the building; it was usual to give the greatest height to the windows of the principal floor. The windows of the two next storeys he made of equal height, but slightly less than the ground floor windows. Theoretically the upper windows should have been slightly lower than those immediately below them.

If you will intently look at these two ranges of windows you will inevitably believe that the upper tier is very slightly higher than the lower tier. The upper windows of a building with windows of the same height appear higher than the lower windows. The proportion of the voids to the solids (window openings to brick work) is such that it at once acclaims stability. There is a simple stone base and quoins (square stones) up the angles which not only add to the appearance of stability, but actually add stability. You could enrich this building by placing architraves round the windows similar to those to the windows of the house next to Lloyds Bank in Lower King Street, the richer treatment, as in that building, going to the principal floor windows. The cornice at the top of the warehouse is an enriched expedient to keep the weather out of the top portion of the wall.

The Art of the Spoiler.

Now, as to how to make a botch of this warehouse of Bannerman's. All will agree that it is sober, inoffensive, and dignified, and has a good, honest, stable appearance. Modern shops upon the ground floor, level with the street, would be the usual way to murder this building. Put steel columns at wide intervals, span the spaces from column to column with steel girders, and hide this arrangement behind plate-glass. Cover the columns with cloth and pin lace colours or straw hats to them, or do anything

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Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.
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Nottingham.—Mikado Café.
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St Helens.—Borough Sanatorium, Provident Hospital, and Council Schools.
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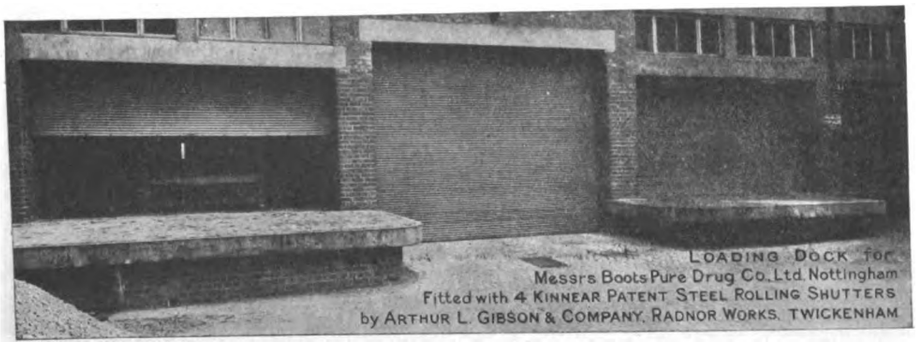
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to hide your wretched construction of which you are rightly ashamed, but must acclaim your goods at all costs, and ask yourselves have you improved your building, or is the reverse the case. The reply is, I am out for money; push your goods (mostly bads) under the people's noses, or they will not buy.

ART IN LONDON.

THE ROYAL SOCIETY OF PAINTERS IN WATER COLOURS.

THE annual summer exhibition of this Society has been speedily followed by one of a special character, and one which is fully worthy of its many predecessors. Artists show a fine *esprit-de-corps*, and their General Benevolent Institution should benefit largely from the proceeds of the present exhibition; for not only is the spirit of charity deeply moved in these days of stress, but (in the present case) the work offered to view is of a calibre which renders the exercise of charity doubly attractive to the art-loving portion of humanity.

We do not purpose, in this review, dwelling upon such work as met with our disapproval, for (as above indicated) the end sanctifies the means. Mr. Napier Hemy, R.A., needs no apologist, his work being of a high order of merit, and making manifest the spirit moving over the face of the waters. Mr. Albert Goodwin, too, is most pleasantly represented; "Day's Ending" bears the true Goodwin timbre, and "Beachy Head" has a final local touch, its texture very fine, and the portrayal of the cliff most realistic. Mr. Reginald Barratt is equally attractive with "The Bronze Candlestick, St. Mark's, Venice" (with the values and materials fully realised), the "Courtyard of Alhambra," and other works; he shows a rapprochement and understanding which are delightful. Particular attention should be drawn to one work by Mr. R. Little, "Sunrise in Tuscany," possessed with the touch of Nature; it is a revel of rhythmic qualities, but we think that the foreground might be advantageously strengthened. Mr. R. Thorne-Waite's "Wensleydale" and "A Roadside Cottage" bear evidence of the artist's sympathy with his subjects; the latter work is one of the gems of the exhibition. Mrs. Allingham's paintings exhibit their customary charm with "Burton Bradstock Meadows" redolent of sunshine. Mr. R. W. Allan's "Winter Quarters" cannot fail to delight beholders; Sir Ernest Waterlow, R.A., has the maestro's touch, while the President, Mr. Alfred Parsons, R.A., exhibits a pleasing brightness; in his "Glastonbury Tor" we recognise one among the six best pictures on view. An artist whose work has not come under our notice hitherto, Miss Phillott, shows a most attractive little picture (No. 136), full of colour and imagery.

And so the tale is carried on throughout the exhibition, but we have referred to sufficient meritorious work to indicate the worthiness of the display; were all those noticed which deserve notice, we should require a much larger share of space in the pages of *The Architect* than would be available.

MR. DUDLEY HARDY, R.W.S., R.I., in "WAR PICTURES" AT THOMAS McLEAN'S GALLERIES.

AT previous exhibitions attended by us at these galleries it has been our good fortune to inspect work which, taken *en masse*, gave us pleasure in beholding. And with an artist of Mr. Dudley Hardy's reputation there was reason to hope that such an experience would be repeated. Our disappointment was therefore correspondingly keen upon being confronted with such a generally poor display as upon the occasion under review. That some of the pictures—indeed, many of them—have certain qualities of art we gratefully recognise, but these are for the most part not sufficient to remove the works from the ranks of the more or less commonplace.

Genuine effect is obtained in a few of the exhibits. "A Woman of Sorrows," "The Traitor," "Never More," "The Great Silence," "Belgium," "The Shadow," "For This!"—in all these the appeal is direct and effective. Let us consider some of these pictures a little more closely, and primarily we observe that Mr. Hardy's works so often fail to be self-interpretive, "The Traitor," for example, being only understandable by those who may have read newspaper reports of Teuton wiles in enemy countries; and equally lacking in exegesis is "Never More," though, as a compelling piece of work, this is admirable, the effect being obtained by the simplest means.

The same may be said of "The Great Silence"—just a gun put out of action, halting on its wrecked carriage in the middle of a snow-clad plain, with a telegraph pole in the very foreground to give scale, and banks of cloud in the grey sky; the vigorous technique is in keeping with the subject.

"Belgium" presents an interesting group at the base of a wayside crucifix, laden with the effigy of Jesus of Nazareth; herein is nothing meretricious, and if we have seen better works of art, at least this is one to Mr. Hardy's credit. His colour schemes are often better than his rendering of the subjects in other details. We must notice with approval a brace of works, "The Harvest of the Sea," severally in 1912 and 1915; the composition and colour are good, showing in one instance the busy group of cheerful fisher folk, in the other a silent, sullen submission to the chances of war. In the faces and figures of some of the *dramatis personæ* great character is shown. But what could be said in favour of such works as "The Red Crosses," "The Wheel of Time," "A Field of Honour," "Desecration," "In From Ypres," and some others? Words of dispraise, it is true, might be formulated, but where the object of the exhibition is of a patriotic nature we are loath to bear upon defects and deficiencies, and more particularly so, perhaps, when we recall the old saying, "Quot homines, tot sententiæ."

CORRESPONDENCE

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Artists' War Relief Exhibition.

SIR,—An exhibition of pictures and drawings is being arranged by the Imperial Arts League and the Royal Institute of British Architects jointly, to be held in the Galleries of the Royal Institute in Maddox Street, for the benefit of painters and architects who are suffering from the effects of the war. It will be opened on Wednesday, July 28, and will remain open for some weeks after that date.

As far as the Royal Institute is concerned, it is proposed to divide the exhibits into two classes:—

(*a*) Works given to be sold for the benefit of the War Relief Fund of the Architects' Benevolent Society (these may be works by the donor or by any other artist).

(*b*) Works by architects sent to be sold for their own benefit. No distinction will be made in the catalogue.

All architects, therefore, who have saleable water-colour, pen-and-ink, or pencil drawings or etchings are invited to send them to be sold either in Class A or Class B.

All works should be distinctly marked A or B.

A small percentage will be deducted from all sales to cover expenses.

As the time for making the necessary arrangements is very short, and the number of drawings for which space can be found cannot yet be ascertained, it may not be possible to hang all that are sent in; but it is proposed to remove drawings when they are sold, and to hang others in place of them, in order to show and sell as many as possible.

Drawings illustrating buildings in Belgium or Northern France would be likely to find purchasers.

All works not sold will be returned to their exhibitors.—

Yours, &c., HARRY REDFERN,
Hon. Sec. for the R.I.B.A. Committee.

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A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Dunstable.—Cookery and joinery Centre.

BERKSHIRE.

Reading.—Hospital: tuberculosis pavilion. Messrs. Charles Smith & Son, F.R.I.B.A., architects, 164 Friar Street.

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ENGLAND—*continued.*

CHESHIRE.

Crewe.—Isolation Hospital: extension. Borough surveyor.

CUMBERLAND.

Carlisle.—Warehouse, Grapes Lane: alterations. Mr. H. C. Marks, M.Inst.C.E., City surveyor, 36 Fisher Street.

Wigton.—Picture palace. Mr. W. Thompson, principal contractor, Ayton Street, Newcastle, and other separate trade contractors.

DEVON.

Exmouth.—Southlands School: additions. Mr. J. Crocker, F.R.I.B.A., architect, Stuckey's Bank Chambers, Exeter.

Plymouth.—Proposed church, St. Gabriel's.

DORSET.

Corfe Mullen.—Proposed P.M. Chapel.

DURHAM.

Gateshead.—R.C. schools for 624 children. Messrs. Lowther & Rigby, architects, 77 Lowgate, Hull.

Houghton-le-Spring.—Banking premises, Newbottle Street, for Messrs. Barclay, Ltd.

ESSEX.

Braintree.—Business premises, High Street: alterations, for Messrs. Aldiss Bros.

Six cottages, Chapel Hill, for Mr. E. Valentine.

Brush Factory: alterations, for Messrs. West & Son.

HAMPSHIRE.

Portsmouth.—Proposed church, St. Cuthbert's, Copnor.

HERTFORDSHIRE.

Cheshunt.—Proposed secondary school, Windmill Lane.

Hitchin.—Business premises, corner of Bucklersbury and Tilehouse Street: alterations. Mr. W. Millard A.R.I.B.A., architect, Benslow Lane.

St. Albans.—Parish Church: proposed chapel.

KENT.

Belvedere.—Proposed St. Augustine's Church.

Benenden.—Congregational Church, Iden Green.

Bromley.—Proposed St. Luke's Church.

Chatham.—Proposed All Saints' Naval Church.

Maidstone.—Business premises, Tonbridge Road, for the Maidstone Co-operative Society.

"Hillside," London Road: addition, for Mr. F. E. Wallis.

No. 35 Earl Street: alterations, for Mr. A. J. Ellis.

LANCASHIRE.

Littleborough.—Dairy, Victoria Street. Mr. H. H. Clough, architect, 32 Lord Street.

Liverpool.—Proposed St. Michael's Church, Blundellsands.

Lytham.—Six houses and three cottages. Mr. J. E. Myrescough, builder, North Clifton Street.

Parish Hall.

LEICESTERSHIRE.

Coalville.—Proposed general hospital.

Loughborough.—Domestic Centre, &c. Messrs. Barrowcliff & Allcock, R.I.B.A., architects, Town Hall.

LINCOLNSHIRE.

Lincoln.—No. 295 Waterside South: additions and alterations, for Mr. C. W. Wright.

Motor garage, Craven Street, for Mr. J. P. Wingad.

Slaughter-house, &c., Brayford Wharf North, for Lincoln Co-operative Society.

Workshop, Coultham Street, for Messrs. Robey & Co., Ltd.

NOTTINGHAMSHIRE.

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SUFFOLK.

Haverhill.—Council School: offices.

SURREY.

Belmont.—Free Church, for Mr. J. Moffatt.

Epsom.—House, West Hill Avenue, for Messrs. Rolls Bros. (for Chases' Trustees).

House, Langley Bottom, for Mr. Burley.

SUSSEX.

Bexhill.—Proposed isolation hospital.

Eastbourne.—Church.

WARWICKSHIRE.

Birmingham.—Mission Church, King's Heath. Mr. G. McMichael, A.R.I.B.A., architect, 105 Colmore Row.

St. Barnabas' Schools. Mr. H. Hobbiss, A.R.I.B.A., architect, Colmore Row.

Coventry.—St. Chad's Church Hall, Stoke (£700).

Wellesbourne.—Wesleyan Church.

YORKSHIRE.

Birstal.—Council school, Howden Clough, for the W.R. Education Committee.

Mytholmroyd.—Scarbottom Mill: additions. Messrs. Sutcliffe (A.R.I.B.A.) & Sutcliffe, architects, New Road, Hebden Bridge.

Ripponden.—Dyson Lane Mills: additions. Messrs. C. Williams & Sons, architects, Post Office Buildings, Commercial Street, Halifax.

Rossington.—Church.

WALES.

Swansea.—Isolation Hospital: Smallpox pavilions.

SCOTLAND.

Arbroath.—Dispensary, &c., High Street: additions and alterations, for Mr. J. Jack.

Banff.—Picture House, Bridge Street, for the Banff Picture House Syndicate.

Bathgate.—Episcopal Church of St. Columba, Meadowhead, Bridgend.

Brechin.—City Road U.F. Church: conversion into picture house, for the Brechin Picture and Variety Company.

Dundee.—Calender, Victoria Road: extension, for Messrs. Henry & Co., Ltd.

Houses, Newington Terrace: alterations, for Mr. D. S. Cowans.

Houses, &c., Lang Wynd: alterations, for Mr. J. Hodge.

Seabraes Mill, Perth Road: extension, for Messrs. J. & A. Guthrie.

Motherwell.—Offices, &c., Meadow Road (£9,000), for Messrs. Hurst, Nelson & Co., Ltd.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 5,795. March 7, 1914.—C. H. Adams, White House, Fulford, York. Manhole covers.—The object is to so make a cover that the plug or lid which fits within the frame shall not rock or be lifted out by passing traffic. The improvements are applicable to either circular, rectangular, or any other shape of cover or road-surface box or gully grating. The invention consists in the use of a manhole, gully, or other road-surface box or cover, having an inner plug or lid fitting into a surrounding frame, the exterior of the plug and the interior of the frame or cover being provided with vertical corrugations or flutings around the whole periphery, which key into each other. This construction prevents lateral movement and makes it impossible to draw out the plug except vertically, with the result that the rocking of the plug or the lid within its surrounding frame

Fig. 1.

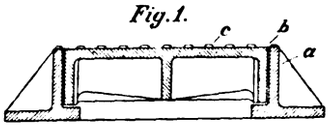


Fig. 3.

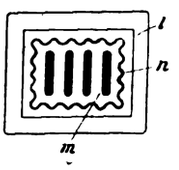
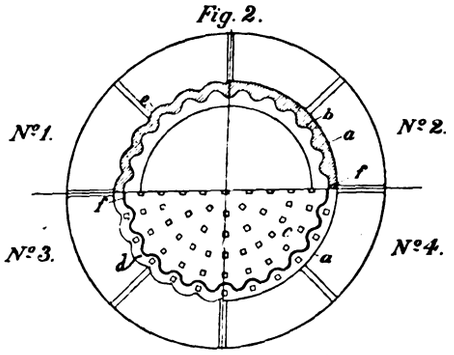


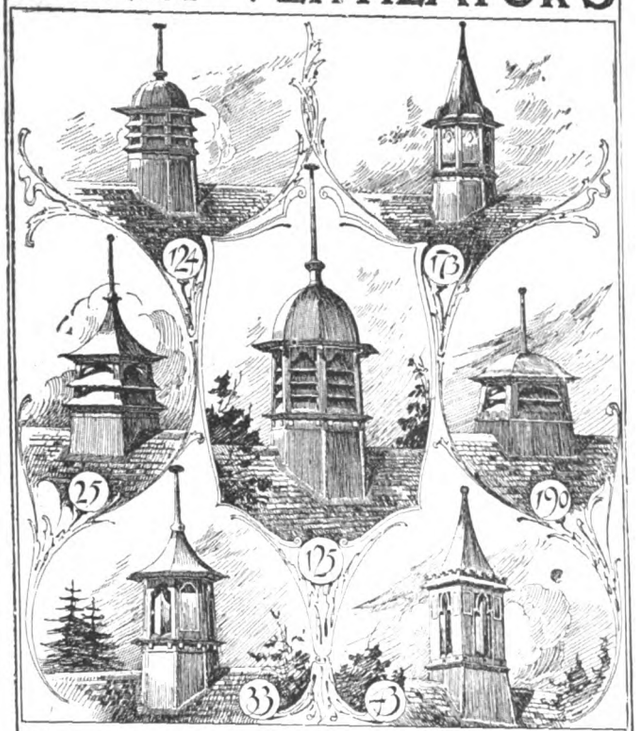
Fig. 2.



is practically impossible, nor will such a plug be drawn out by the passing traffic. Fig. 1 is a vertical section, and Fig. 2 a plan partly in section of a circular cover. The plan fig. 2 shows at *a* the vertical outside frame, at *b* the

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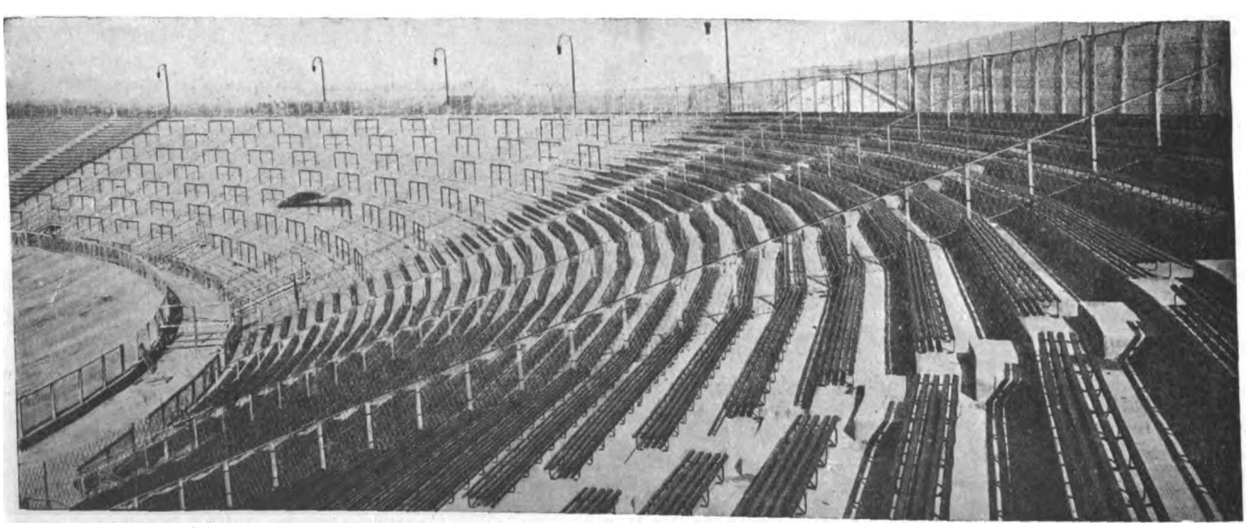
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corrugated inside frame and outside seating for plug with plug removed. At *c* the plug is shown in position, at *d* the vertical outside frame is corrugated to correspond with the corrugated plug, and at *e* the same corrugations are shown, the plug being removed. At *f* is a flat surface which ensures the plug *c* being placed in its correct position. Pockets or recesses may be formed in this flat surface of the plug, upon which a crowbar may be used as a lever to raise the plug; the fulcrum of the lever would be upon the edge of the surrounding frame. The section at fig. 1 corresponds with the plan at fig. 2. Fig. 3 shows in plan a rectangular gully grate where *l* is the outer frame, *m* the lid or grating, and *n* the corrugations surrounding the latter.—June 16, 1915.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 21,138. Sept. 18, 1913.—Hermann Frank, 20 George Bahrstrasse, Dresden. Apparatus for automatically regulating temperature in rooms and the like.

22,519. Oct. 6, 1913.—Dated under International Convention Oct. 8, 1912. F. C. W. Timm, 86 Wandsbecker Chaussee, Hamburg 23, Germany. Process for recovering zinc from zinciferous materials.

23,301. Oct. 15, 1913.—Dated under International Convention April 30, 1913. Hans Mullermeister, 3 Sonderburgstr, Obercassel-Dusseldorf, Germany. Apparatus for purifying, humidifying, and circulating air.

23,394. Oct. 16, 1913.—The Armurduct Manufacturing Company, Ltd., and Gregor MacGregor, Bathurst Works, Witton, Birmingham. Vacuum cleaners.

25,753. Nov. 11, 1913.—Paul Saillard, 173 rue de Tolbaic, Paris. Apparatus for indicating the level or quantity of liquid in a tank or the like.

7,061. March 20, 1914.—Dated under International Convention March 20, 1913. Arthur Anker, 80 rue Taitbout, Paris. Process and apparatus for slaking mortar materials.

7,073. March 20, 1914.—Clemens Liedhegener, Schweich-on-the Mosel, Germany. Gully traps and silt boxes therefor.

7,118. March 20, 1914.—Dated under International Convention March 22, 1913. Hugo Junkers, Frankenburg 68, Bismarckstr, Aachen, Germany. Water-heating apparatus or "geysers."

7,266. March 23, 1914.—Dr. Alfred Zehden, 75 Koniggratzerstr, Berlin. Electrical burglar alarms.

7,462. March 24, 1914.—Dated under International Convention May 9, 1913. Vertriebsgesellschaft Magnet-Elektrischer Apparate M.B.H., 42 Spreestrasse, Charlottenburg, Germany. Method of and apparatus for indicating or signalling the rise of water level.

11,287. May 7, 1914.—H. K. Milham, Ferry Works, Strawberry Hill, Twickenham. Portable hand-drilling machines.

11,658. May 12, 1914.—Christian Korte, 10 Avenue Crescent, Harehills Avenue, Leeds. Hydraulic briquetting machines.

12,154. May 16, 1914.—M. W. Pitner, 8 E. Kinzie Street, Chicago, Ill., U.S.A. Proeess and apparatus for burning gases for heating purposes.

14,280. June 13, 1914.—Warren Webster & Co., Point Street, Camden, New Jersey, U.S.A., and F. H. Montreuil, 1510 Monadnock Block, Chicago. Steam heating systems.

14,332. June 15, 1914.—Soc. Anonyme La Ceramique Nationale, of Welkenraedt, Belgium. Manufacture of patterned or fancy tiles.

14,408. June 16, 1914.—F. H. Davies, 55 Pritchard Street, Johannesburg. Self-sharpening propelling lead pencil.

14,432. June 16, 1914.—Otto Meyer-Keller, 26 Pilatusstrasse, Lucerne, Switzerland. Apparatus for automatically lighting and extinguishing gas lamps at predetermined time intervals.

14,469. June 16, 1914.—A. F. Berry, 27 Woodville Road, Ealing. Electrical heating apparatus.

14,674. June 18, 1914.—H. R. Whittaker, 68 Faircross Avenue, Barking, Essex. Construction of vacuum cleaner.

14,688. June 18, 1914.—Arthur Watkinson and Beckett, Laycock & Watkinson, Ltd., all of Sheffield Works, Willesden, N.W. Windows or the like.

15,916. July 3, 1914.—M. J. Adams, Fireclay Works, Scotswood-on-Tyne. Lavatory basins.

17,376. July 22, 1914.—P. A. Smithurst, 226 Seeley Road, Mitcham Lane, Tooting. Door-closing and checking mechanism.

17,263. July 21, 1914.—John Stratton, The Lindens, Winton Road, Bowdon, Cheshire, and E. A. Claremont, Broom Cottage, High Legh, Cheshire. Lead-cutting glazing bars.

18,096. July 31, 1914.—E. A. Andrews, "Emsley," Greenhill Road, Moseley, Birmingham, and A. E. Owen, Victoria Ironworks, Darlaston, Staffs. Filters.

20,022. Sept. 22, 1914.—John Shanks, Tubal Works, Barrhead, Renfrewshire. Heat exchangers applicable more especially as radiators for heating compartments and the like.

22,112. Nov. 6, 1914.—Mellowes & Co., Ltd., 40 Corporation Street, Sheffield, and A. E. Rasey, 105 Windmill Street, Gravesend. Flushing arrangements in water closets.

18,893. Aug. 21, 1914.—C. F. Spencer, York Chambers, Halifax. Urinals

679. Jan. 15, 1915.—Chas. McWhirter, 249 East India Dock Road, Poplar. Hot-water supply cisterns.

1,602. Feb. 1, 1915.—Dated under International Convention Feb. 6, 1914. Eugene McDonnell, 5,221 South Central Avenue, Chicago. Combination locks.

7,283. March 10, 1914.—Johannes Marschall, 11 Grosse Meissnerstr, Dresden. Air-heating device in connection with thermopiles.

23,302. Oct. 15, 1913.—John Cunningham, 20 Brickdam, Georgetown, British Guiana, South America. Vapour burners for stoves.

1,738. Jan. 22, 1914, and 1,739, Jan. 22, 1914.—Dated under International Convention Sept. 18, 1913. Otto Wilhelmi, Maihof, Maihofstr, Lucerne, Switzerland. Method of and means for sinking wells and making holes in the ground for piles, posts, and the like.

6,783. March 17, 1914.—Dated under International Convention March 22, 1913. W. Van den Daele, Humboldstr 49, Dusseldorf. Manufacture of expanded metal lattice work for use in building construction.

11,097. May 5, 1914.—J. P. Williams, 514 West 57th Street, Manhattan, N.Y., U.S.A. Electric burglar alarm systems.

12,059. Nov. 14, 1914.—William Adams, Henddol House, 362 London Road, Thornton Heath. Incandescent electric-lamp holders.

13,856. June 8, 1914.—The Universal Valve Company, 309 Charles Street, S.E., and Grand Rapids, Kent, Michigan, U.S.A. Valves for use in connection with fire-extinguishing apparatus.

4,031. March 15, 1915.—J. Halden & Co., Ltd., 8 Albert Square, Manchester, and James Westwood, 2 Norman Grove, Reddish, near Stockport. Drawing boards.

22,372. Nov. 11, 1914.—W. N. Haden, C. I. Haden, St. George's Works, Trowbridge, Wiltshire, and F. H. Horton, Lincoln House, Kingsway, W.C. System of hot-water heating.

2,466. June 2, 1914.—H. E. Brown, 15 West Chestnut Street, Kingston, Ulster, N.Y., U.S.A. Process of treating siliceous material to produce hydraulic cement and alkali therefrom.

4,374. March 19, 1915.—Alfredo Grandi, 466 Via Galliera, Bologna, Italy. Cocks or valves.

19,949A. Sept. 7, 1906.—W. H. Brown, architect, 3 Crofts Terrace, York. Bonds for securing fencing construction of concrete columns; and 19,949, Sept. 7, 1906. bond ties for walls and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

SIR,—The present list contains a large number of enemy patents which have been withheld from acceptance for a certain length of time by the Patent Office.

It cannot be too widely known among your readers that under the new Patents, Designs, and Trade Marks (Temporary) Rules Act of 1914 the Board of Trade is empowered to order the avoidance or suspension of any enemy patent on the application of any person, and subject to such terms and conditions as the Board of Trade may think fit.

Any person may therefore apply for an order for such avoidance or suspension in his favour who intends to manufacture or cause to be manufactured the patented article, or to carry on or cause to be carried on the patented process.

We think that as very few manufacturers appear to be aware of the provisions of this Act, it will be advisable to publish this intimation two or three times in your Journal immediately following the list of patents.

You can refer your readers for further particulars with regard to such licenses to us, which we shall be glad to give without charge.—Yours, &c.,

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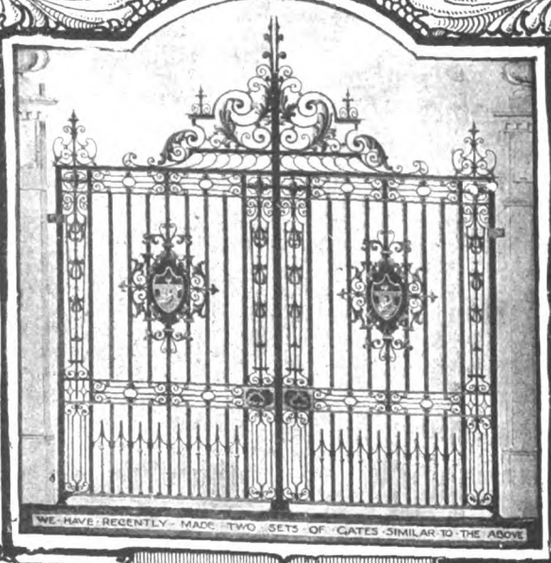
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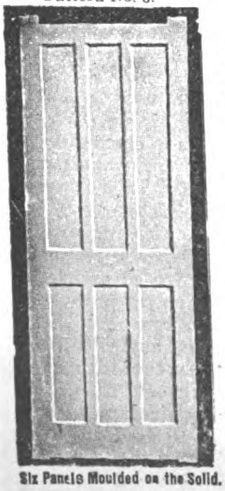
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FORTHCOMING EVENTS.

Wednesday, July 28.

Opening of Artists' War Relief Exhibition at 23A Maddox Street, New Bond Street, W., by H.R.H. the Princess Louise, Duchess of Argyll, at 3 P.M.

STUDENTS' DRAWINGS AT THE ARCHITECTURAL ASSOCIATION.

THE annual show of drawings by prize-winning and other students at the Architectural Association, as at any other educational institution, is always of interest as indicating the trend of instruction at any particular school at the present time, and so in some degree presaging the immediate future of up-to-date architectural design. The School at the Architectural Association has now been sufficiently long under the direction of Mr. Robert Atkinson for us to recognise the influence of his methods and the change of principle from the lines adopted by Mr. Maule. We see that the special character of the training in the A.A. Schools which was in the past its distinguishing feature, the training of our embryo architects in practical work, the artistic treatment of the problems that will confront its students when they first set out to make a living for themselves as practising architects, has given place to the study of Architecture with a capital A, the evolution of designs for grandiose monumental schemes, the attainment of French methods and tricks of draughtsmanship.

The Council of the Architectural Association deliberately intended this change, and it has been successfully accomplished. That it was wise to make the change is a proposition in regard to which we do not agree with the Council. We hold that the proper place for the study of monumental architectural designs, and, if you will, of French draughtsmanship, is the architectural school of the Royal Academy, not the Architectural Association. The opportunities for English architects of carrying monumental schemes beyond the paper stage are so few and far between that even the present depleted number of students in the day school of the Architectural Association would scarcely find one job apiece for each of them during the lifetime of the present generation.

We anticipate the possible results of the A.A. change of policy will be a considerable increase of the number of admirable designs in all future open competitions for monumental buildings in England; a possible, but not necessarily probable, improvement in the character of our great public buildings, for the essential that wins open competitions, skilful planning, is not amongst the strong points of the present students of the Architectural Association; an inability to maintain the present ascendency of English domestic architecture; a diminution of the number of students in the A.A. Schools when their tendency is generally recognised.

We have said that the A.A. School has successfully reached the goal that the Council intended. Of this no further proof is required than the design for a Conservatoire of Music by Mr. M. D. N. Koch, which is quite capable of holding its own in the Paris Salon alongside the productions of students in the Ecole des Beaux-Arts. Planning, draughtsmanship, spatter work, and gilt border are all up to the French standard, both in its strength and in its weakness. On the other hand, the designs by third-year students for a small country house fall very far short both in planning and in composition of the excellence we have seen in the past at the Architectural Association, to say nothing of Gidea Park, the Hampstead Garden Suburb, and other examples of modern English domestic work.

In examining the course of training by which present-day students at the A.A. are being educated to the level of the Ecole des Beaux-Arts we note that in their first year they are set to learn design by copying plans of the Roman baths of Titus, Diocletian, Caracalla, and Constantine, and by exercises in a market hall in renaissance, a garden nursery in half timber and thatch, a Byzantine church, whilst draughtsmanship is shown in some excellent large-scale shaded drawings of Greco-Roman and Byzantine ornament. They also learn the very important art of putting gilt borders to their drawings.

The second-year students devote special attention to water-colour and the free use of the full brush, to spatter work, to "compositions" of the various orders, and of Italian renaissance. They also design a Byzantine church, a Roman triumphal arch and bridge, a town hall in Belgium, a banqueting hall in the Adam manner, a temple in a public garden, and an orangery.

It is when we come to the work of third-year students that we begin to see the results of early training and exercises. We now find experts in the use of the full brush and spatter and more or less success in the design of monumental architecture. Planning appears to be restricted to a council chamber, a block of flats, and the small country house to which we have already referred. In neither subject is there much evidence of capability. The flats are symmetrical, but have dark corridors, bad service from kitchen and dining-room, and other similar departures from convenience and habitability. Small houses do not apparently always require headroom under stairs. The list of subjects for design include a memorial to Lord Roberts, a triumphal arch, a tomb in a cemetery, an Italian cortile, a base or standard for a Venetian mast, an entrance to a museum, a single-span bridge, a domed church, a column in a *place*, a façade for a firm of fine art publishers, and a group of public baths on a site immensely bigger than any borough council in England would be likely to provide.

In the work of Mr. W. C. von Berg, the winner of the A.A. travelling studentship, we recognise a student who has not only learnt to handle excellently water-colour, spatter, and gold border, but who shows a good sense of proportion and ability in composition. His best designs are those for the Lord Roberts memorial, the Venetian mast standard, and the triumphal arch, and as he essays more ambitious subjects Mr. von Berg promises to uphold the credit of the A.A. School as a training ground in monumental architecture—on paper. Mr. F. P. M. Woodhouse, the winner of the Andrew Oliver prize and President's prize, falls short of the skill of Mr. von Berg as yet in brushwork and spatter, though his performances are fair. His Roberts memorial has an Indian flavour in form accentuated by the elephant. His bridge, domed church, and column in a square all show good design.

Most of the other prize-winners of the third year include the Roberts memorial and the Venetian mast

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standard amongst their most successful designs, their ability to draw ornament being well brought out by the latter subject. Mr. F. Reixa is good at his water-colour work. Mr. N. F. C. Day apparently owes his prize to industry, as the quality of his design is unequal, his triumphal arch, for instance, being particularly poor in proportion. Mr. J. C. C. Bruce shows well-drawn detail, but his brushwork is crude. Mr. G. C. Tubbs sets a good example in his Roberts memorial design, as his drawing bears a photograph of his model of the design. Mr. C. J. Brandon, the winner of the Jarvis scholarship, shows good designs for the Roberts memorial, the Venetian mast standard, the museum entrance, and a fair plan for the flats.

The School has very much suffered in numbers this year from the war, which has drawn off many students, and the evening school has collapsed altogether from this cause; but those who are left show that the present teaching is producing what the Council desire at the A.A. —an English Ecole des Beaux-Arts.

NOTES AND COMMENTS.

IN the discussion by the Upper House of Convocation of Canterbury of a report of their committee in regard to faculties and the care of ancient churches, the most important resolution adopted was, in our opinion, that inviting the Chancellors to deliberate together as to the kind of repairs that may be executed without a faculty. As we have before pointed out in these Notes, the present law is that all repairs or alterations, even the most trivial, require a faculty. This is so obviously unreasonable and absurd that the law is continually broken, and the most important reform required in faculty law is the determination of the extent of repair or alteration at which a faculty should be imperative. The resolutions adopted by the Upper House were the following:—

"That the Court have power to grant to those who, in its judgment, have a claim to be heard in each case, permission to appear."

"That the procedure in the various Consistory Courts should, as far as possible, be made uniform in all Dioceses, and that rules of procedure and a model form of petition be given in the Diocesan Calendar of every Diocese."

"That the Chancellors be invited to be good enough to deliberate together as to the kind of repairs which may be executed without a faculty."

"That, in case of doubt, reference should be made to the Diocesan Registrar, it being understood that if such reference were not made, and it subsequently appeared that the work done infringed the Diocesan rules, the Churchwardens would be held responsible."

"That part of the fees be payable on presentation of the petition."

"That the Bishops confer with their Chancellors and Registrars as to the possibility of lowering the fees for minor faculties, either by the use of what is known as the omnibus faculty, or by the adoption of a scale of fees varying in proportion to the cost of the object for which the faculty is sought."

We fear the Royal Scottish Arboricultural Society are flogging a dead horse in urging the cause of afforestation at the present time, but we quite agree with their view that afforestation should be a national business, and so we are in accord with the following resolution adopted by the Society at a recent general meeting:—

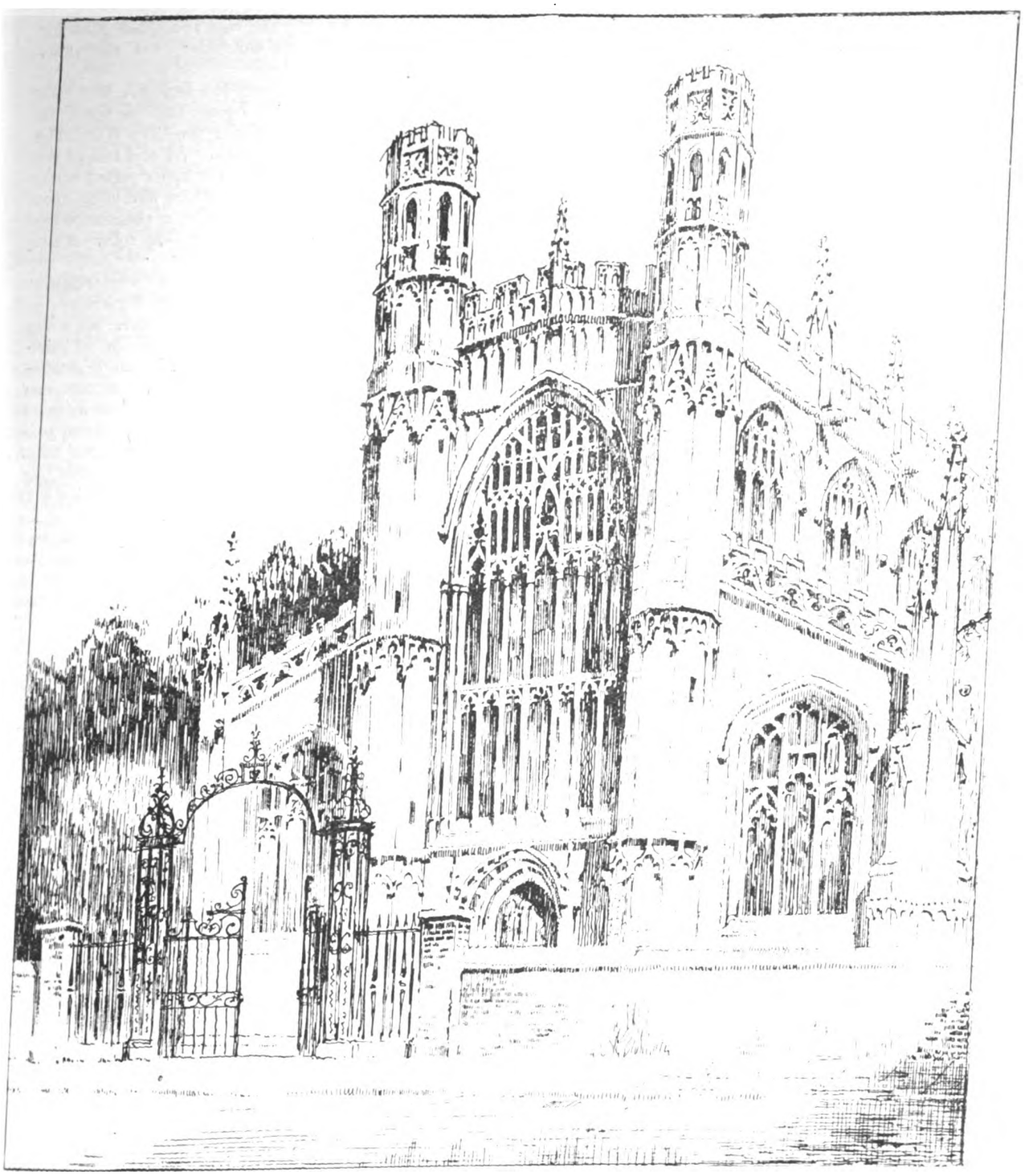
The Royal Scottish Arboricultural Society in general meeting assembled, while recognising that the first duty of the nation at this time is to do everything in its power to bring the war to a speedy and successful termination, respectfully points out that at the end of the war a large number of soldiers and sailors who return may not be able to resume their former occupations, and may desire to find outdoor employment and a comfortable home in the country, which under present circumstances they would not be able to do, and that afforestation—with which might be advantageously combined small holdings and other rural industries—if carried out on a considerable scale in various centres, would afford suitable employment, under healthy conditions, for a large and ever-increasing rural population. The Society therefore, without repeating the now familiar arguments in favour of afforestation, all of which have been greatly strengthened by events since the war began, respectfully draws the attention of the Government to the urgent need of immediate preparation for the emergency referred to, and suggests that the Board of Agriculture for Scotland, as the body charged with the care of forestry in this country, should be authorised to prepare schemes of afforestation on the lines indicated, and should be assured that adequate funds will be provided to put those schemes into operation whenever the war is over, so as to meet the needs of returning soldiers and sailors and others who desire to settle upon the land.

An important point of town planning law has been laid down by Lord Hunter in the Scots Court of Session, in an action by the Glasgow and South-Western Railway Company against the Town Council of Ayr and the Local Government Board of Scotland. His Lordship in the course of his opinion, said the real question was whether any land which had been acquired by a railway company by compulsory powers conferred by statute might be included within a town planning scheme. On February 8 the burgh of Ayr intimated to the Glasgow and South-Western Railway Company that they intended to make application to the Local Government Board for authority to prepare a scheme of town planning applicable to the land in the burgh of Ayr bounded by the pursuers' railway on the west, the municipal boundary of the burgh on the south-east, the Holmston Road on the north-west, and the cattle market on the north. The land there referred to included certain land belonging to the railway company acquired by them for statutory purposes, but not yet utilised. The railway company requested the burgh to exclude the land, but the latter took up the position that the matter fell to be dealt with by the Local Government Board. That body appointed a commissioner to hold an inquiry into the application of the burgh, which was held on May 7, 1915. Nothing had so far been done by the Board with reference to the scheme. On May 5 the present action was raised. Having examined the provisions of the Act bearing on the matter His Lordship said there was no provision of the Act excluding railway lands from the purview of a town planning scheme. It was, however, contended by Mr. Jamieson, who fully and ably argued the case for the pursuers, that as their lands had been acquired by special Acts to be utilised for railway purposes they could not be affected by the provisions of such a scheme. That might be a formidable argument if lands so acquired could not be used for building purposes. That, however, could not be contended, as by the Railway Clauses Act a railway company might on land compulsorily acquired by them erect and construct such houses and other buildings as they thought proper, and by the Housing of the Working Classes Act, 1890, a railway company might erect on their own land dwellings for the accommodation of all or any of the working classes employed by them. His Lordship did not see why such dwellings, unless expressly exempted by the Legislature, should not conform to the provisions of a town planning scheme. A railway company, like any other owner of ground within a burgh, must apply to the Dean of Guild for a lining to erect buildings, and such buildings were as much affected by statutory regulations as to light, air, and sanitary conveniences as other buildings. As his Lordship read the Town Planning Act, he was not entitled to say that all land belonging to a railway company acquired by compulsory purchase under statute was necessarily excluded from

(*Continued on page* 66.)

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



ST. MARY'S CHURCH, BEVERLEY.
From a Drawing by "STICKET."

In the second quarter of the twelfth century this church was an aisleless church. Aisles were added to the nave just a century after this, and from time to time various additions were made, such as transepts, chapel, chancel aisle, and early in the fifteenth century the nave clerestory and west end, which are shown in the drawing, were built. This was followed by chancel clerestory and reconstruction of transepts which were finished in the middle of the fifteenth century. The nave and tower were reconstructed after the fall of the tower in 1520.

The large window in this west front is a very successful piece of design, and is very rich in effect. The free portions of the two flanking towers are pierced, as are also the parapets to the aisles.

The stone is a beautiful grey colour and the richness of the tracery and piercings in this stone result in an effect almost of brilliance.

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a town planning scheme. If that were a sound view it was not for a Court of law but for the Local Government Board to say whether the pursuers' lands should or should not be exempt from the scheme. That body was made by statute the final judges of whether land was likely to be used for building purposes, and under the powers conferred upon them might apparently make the provisions of the town planning scheme applicable to the pursuers' lands only in the event of such lands being used, and to the extent to which they were in fact used for building purposes.

The action of the Government in discouraging the prosecution of housing schemes at the present time by local authorities accentuates an already acute question in Sheffield, and the City Council have good ground for the memorial which they have decided shall be addressed to the Minister of Munitions in the following terms:—

"1. That owing to the armament and other works in Sheffield being engaged in the supply of large quantities of munitions of war there has been an influx into Sheffield of several thousands of workmen who are engaged in such manufacture, and that such numbers are believed to be likely to be increased.

"2. That of late years considerable numbers of houses occupied by the working classes have been demolished for various purposes, many of such being in connection with the enlargement of armament works, and that such extensions and demolitions are still proceeding.

"3. That of late years there has been a steady decrease in the number of new houses for the working classes built within the city, and that private enterprise is not at the present time making any substantial addition to the number of such houses.

"4. That at the present time there is undoubtedly a shortage of houses in the city, and many families are unable to find the accommodation they require, with a result that there is a considerable risk of overcrowding and danger to public health.

"5. That the Sheffield Corporation are building 59 houses on an estate at High Wincobank, a district near to the principal armament works in Sheffield, and that they propose as soon as possible to build 69 additional houses, and have in contemplation still further provision of housing accommodation, but at the present time the Local Government Board and the Treasury have not seen their way to sanction the erection of any more than the 59 houses now approaching completion.

"6. That complaints are made by employers that their workmen engaged in the manufacture of munitions of war are unable to find houses, and in many cases threaten to leave the town unless houses can be provided for their families.

"7. That this difficulty is believed to be increasing, and may affect the output of munitions of war in Sheffield.

"Your memorialists therefore respectfully urge His Majesty's Government to allow them to proceed at once with the erection of additional dwelling-houses at High Wincobank, and to advise them as to what further steps should be taken in order to supply the need referred to in the memorial."

The Humber Archæological Society last week visited two interesting old Sheffield houses, Carbrook Hall and Attercliffe Hall with the old Attercliffe Chapel, which, with the exception of the cathedral, is the oldest ecclesiastical edifice in Sheffield. The former has for the past ninety years been used as a licensed house, and was described by Mr. J. R. Wigfull, whilst Mr. Charles Paul dealt with Attercliffe.

Carbrook Hall dates from the time of Stephen Bright, whose father, Thomas, of Bradbury, settled at Carbrook about the beginning of the seventeenth century. Stephen built or enlarged the hall, where, on the back of one of the fireplaces are still to be seen his initials and the date 1623. He was a man of some importance in the town, being bailiff of Hallamshire and lord of the manor of Ecclesall. In the seventeenth year of Charles I. he was granted arms as "a person of £1,000 a year estate, of credit and respect in the affections of the gentry, and of extraordinary merit." He died in 1642, and was succeeded by his son, Sir John Bright, who took an active part in the Civil War, rising to the rank of Colonel in the Parliamentary Army. He was appointed governor of Sheffield Castle after its surrender, and afterwards governor of York.

The oak-panelled room, said the lecturer, was once the principal apartment of the house, and the scene, no doubt, of many a conference during the Civil War. The panelling is of an elaborate design. At one end of the room is a richly-carved mantel, in the upper part of which is a panel said to represent "Wisdom trampling upon Ignorance," the latter represented by a skeleton, while Wisdom is typified by a figure in a long robe. Above this room is another of great interest.

The old chapel dates from 1630. It was originally 66 feet from east to west, and 30 feet from north to south, together with an aisle on the north side, but it was considerably reduced in size in 1837. The cost of building it was £104, and the ground on which it stood—though of much smaller area than that which now surrounds it—was bought for only £3 8s. For many years the chapel was allowed to remain in a dilapidated condition, but about ten years ago it was repaired, and again adapted for service, while at the same time the City Council took charge of the graveyard and laid it out as an open space.

What remains of Attercliffe Hall is now used as a dwelling-house, and is situated on Attercliffe Road, just past the junction of Old Hall Road. Dr. Gatty states that the hall was demolished in 1868 by Mr. Robert Hadfield, but, said Mr. Paul, recent investigations by Mr. C. R. Vine and Mr. Ward, of Attercliffe, show that the doctor was not strictly correct. The hall can claim greater antiquity than its Carbrook neighbour. It was the seat of the Spencers, and William Spencer was born in 1584. His son William became a Lieutenant-Colonel in the Parliamentary Army. After the collapse of the Commonwealth he obtained a free pardon from the Crown, and was confirmed in the possession of his estates. He invited one of the ejected clergy of 1662, Richard Frankland, to set up his academy at the hall, and the Rev. Timothy Jollie also carried on his school there.

The present remnants of the hall are supposed to have been the academical rooms. In one, which was probably the lecture room, is a plaster motto over the fireplace, reading, "Whatsoever thou dost take in hande thinke of the ende and seldom so shalt thou offend." The rooms contain some very interesting plaster work. The Spencers must have parted with their Attercliffe possessions some time before 1810, as their name does not appear as allottees in Attercliffe under the Enclosure Act of that year. Afterwards, the premises were occupied by a firm of spade and shovel manufacturers, with whom the late Sir Charles Skelton served his apprenticeship.

In the current *Quarterly Statement* of the Palestine Exploration Fund, Colonel Sir Charles M. Watson gives an interesting historical account of the relations between Egypt and Palestine, showing (1) that the desert separating Egypt from Palestine has never been a serious obstacle to a properly equipped and well-led army advancing in either direction; (2) that from the earliest times, with the exception of some comparatively short intervals, Palestine has been a dependency of Egypt, or else Egypt and Palestine have both been provinces of the same empire, whether that empire was Assyrian, Persian, Greek, Roman, Arab, or Turkish. He then proceeds to discuss the future of Palestine on the putative break-up of the present Turkish empire, and argues that it is not desirable that either France, Russia, or England should take possession of Palestine, but that this country should once again belong to Egypt on the restoration of the Sultanate.

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WAR ITEMS.

ONCE more the Royal Engineers of the 1st London Divisional Territorial Force are recruiting for new field companies to back up those now fighting in France and the Dardanelles. They ask for skilled, intelligent, vigorous men, and particularly those who have been used to responsibility, as it often happens that individual sappers of the Royal Engineers have to take charge of working parties of other arms.

Carpenters, bricklayers, masons, and men connected with the building trades, not employed on Government work or in the production of munitions of war, are required; also a few coopers and experienced draughtsmen and surveyors.

The work is interesting and varied, including bridging, pontooning, earthworks, and explosives. Each company has its own transport vehicles and horses, and some men experienced in care of horses are wanted as drivers. The pay is considerably higher than in some other branches of the Service.

Young unmarried men especially should not miss this opportunity of serving their country. Applications should be made at once to the Recruiting Officer, 10 Victoria Park Square, London, N.E.

COMPETITION NEWS.

DONCASTER.—In the architectural competition for the development of the Carr House estate, the assessor, Mr Patrick Abercrombie, M.A., A.R.I.B.A., of Liverpool University, has awarded the first place to Messrs. J. C. Ireland, Licentiate R.I.B.A., & C. E. Hanscomb, A.R.I.B.A., of West Ealing and Sanderstead. Over a hundred schemes were submitted in the competition. On the area intended for immediate development provision is made for 102 houses, and the area, deducting allotments and playgrounds, is about four acres. Provision is made for about 300 houses on the other portion of the estate. All the roads will be 42 feet wide. The names of the premium winners are: Site plan, Messrs. Ireland & Hanscomb (first prize); house plan, Mr. G. A. Boswell, of Glasgow (second prize); and housing plan, Mr. J. S. Stout, of Whitehaven (third prize).

IRELAND.—At a meeting of the New County Offices Committee of the Louth County Council at Dundalk the report of Professor William A. Scott, A.R.I.B.A., F.R.I.A.I., A.R.H.A., was read, and his award made on the architects' competition. The successful competitors were found to be Messrs. O'Callaghan & Webb, architects, South Frederick Street, Dublin. The plans placed second and third, respectively, were those of Messrs. Batchelor & Hicks, Merrion Square, Dublin, and Thomas J. Cullen, Suffolk Street, Dublin.

ILLUSTRATIONS.

GARDEN DOOR, JESMOND MANOR HOUSE, NEWCASTLE-UPON-TYNE.

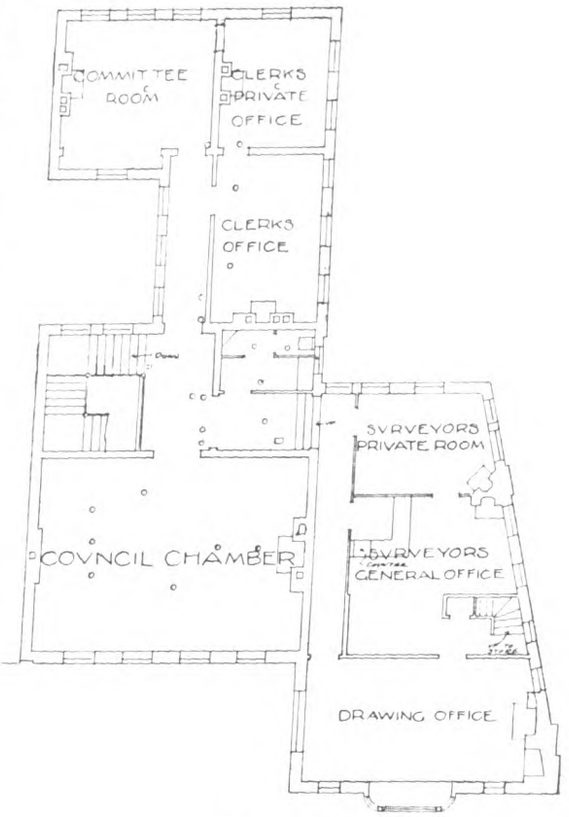
THE house is an interesting eighteenth-century example, and has excellent wrought-iron gates. This doorway was originally the main entrance, but is now in use as garden doorway. The stonework, especially of the carving, is badly decayed in places. Our illustration is from a measured drawing submitted in "The Architect" Students' Sketching and Measuring Club, by Mr. Geo. H. Gray, the winner of "The Architect" Travelling Studentship for this year, who is now serving with the colours as Second-Lieutenant in the Durham Royal Engineers.

THE NEW PUBLIC OFFICES, HARROW-ON-THE-HILL.

THE new building is an extension, according to the plans—selected in open competition—of Mr. Harry Prince, A.R.I.B.A., of the old Public Offices, and is built on the site of some cottages which had been previously utilised for temporary offices.

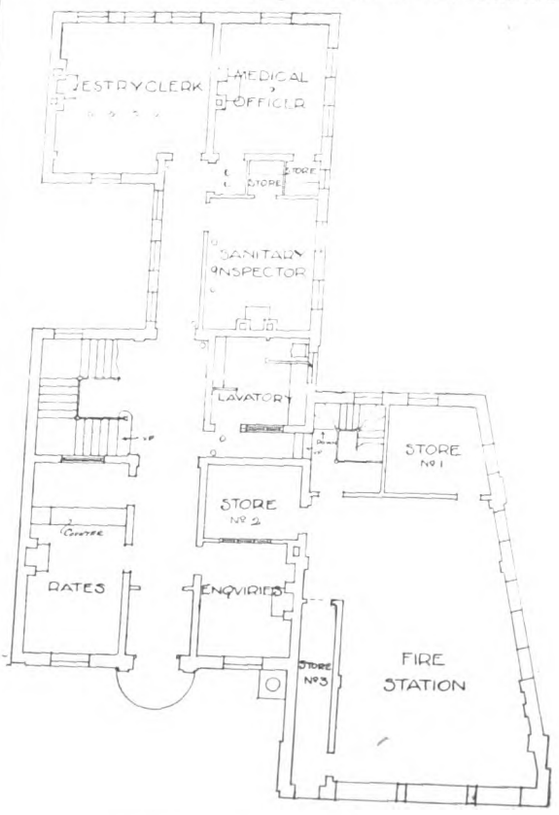
The building erected in 1888 consisted of caretaker's rooms in the basement, fire station on the ground floor, Council room, clerk's office, and surveyor's office on the first floor. The fire station is retained, whilst the other portions of the building have been altered to suit the needs of the new scheme.

The main front faces the High Street, whilst the back and side elevations face Byron Hill Road. The walls are built with purple bricks with lighter coloured bricks round the window openings, and the porch, plinth, cornice, &c., in Portland stone.



FIRST FLOOR

In the design endeavour has been made to harmonise as far as possible with surrounding buildings. A feature of the front elevation is the porch with carved stone head. The



GROUND FLOOR

roofs are covered with red sand-faced tiles, the roof of the front elevation being surmounted by a small flèche of oak with copper dome.

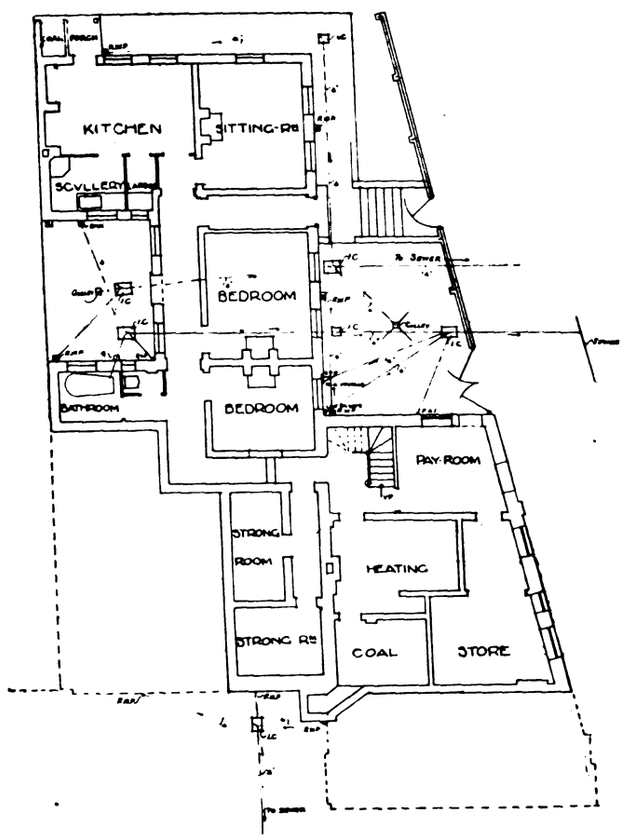
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The yard space in the rear of the old building has been formed so as to be utilised for fire drill purposes.

On the basement floor are the caretaker's rooms and two large strong rooms. The basement to the old building has been reconstructed so as to form a room in which the Council's workmen will be paid, a heating chamber, and bicycle store. A new staircase has been formed in the old building giving access to the basement from the fire station and the new offices.

The main entrance to the new offices is from the High Street, and near the entrance are the inquiry office and rate collector's office; along the corridor are the offices for the medical officer of health, the sanitary inspector, and the vestry clerk. The floor of the main corridor is in black and white marble. The main staircase leading to the Council room is placed in the centre of the building, and is constructed of Portland stone with ornamental iron balustrade.

On the first floor the Council chamber occupies the whole of the front of the new building, its windows overlooking the High Street. It is panelled in Austrian oak and has a



BASEMENT PLAN.

coved ceiling enriched with ornamental plaster work. The room measures 31 feet by 22 feet, and is ventilated by means of an electric fan fixed above the circular grille in the ceiling.

The committee room at the other end of the corridor is panelled in American white wood and has an enriched plaster ceiling.

The other rooms on this floor are the clerk's private and general offices. In the old building the rooms on this floor have been reconstructed, and now consist of the surveyor's private, general, and drawing offices.

The heating is by means of radiators, but each room has also an open fireplace.

The whole of the floors of the new building are of fire-resisting construction.

Messrs. F. Webster & Son were the general contractors. Among the sub-contractors were: Plaster work and lead work, Bromsgrove Guild; plaster ceiling in committee room, Mr. H. Finch; carving, Messrs. W. Aumonier & Son and Mr. E. Burton; heating engineering, Messrs. Richard Crittall & Co.; sanitary fittings, Messrs. George Jennings, Ltd.; brickwork, Messrs. Thomas Lawrence (Bracknell); wood block floors, Mosaic Manufacturing Co.; electric engineering, Messrs. Ridout & Co. and the Harrow Electric Light Co.; woodwork, Messrs. J. P. White; fireproof floors, Messrs. H. Young & Co.; door and window furniture, Messrs. Yannedis & Co.

THE ARCHITECTURAL ASSOCIATION.

THE annual prize distribution in connection with the Architectural Association School of Architecture took place on Friday, the 16th inst., at 18 Tufton Street, Westminster, S.W. The chair was occupied by Mr. H. Austen Hall, F.R.I.B.A., president. Owing to the war the ceremony lacked its customary extraneous features.

Mr. Austen Hall, in some introductory remarks, pointed out that the School had been very much affected by the war. Under the circumstances, the usual number of guests had not been asked to the prize distribution, and it had been decided to keep it very much to themselves, and as quietly as possible. Mr. Ernest Newton, A.R.A., had very kindly come down as representative of the R.I.B.A. Since last year they had lost about fifty students, who very properly enlisted on the outbreak of the war. During the term men had been constantly leaving after putting in only a few days. All this rendered the work of organisation very difficult. In spite of that, those students who stayed behind—none of whom are eligible for the Army—have done remarkably well. The work hung on the walls represented the work of a very heavily-depleted school. Both the students and the masters had done wonders under the difficult circumstances with which they were faced. Four of the masters and fifty students left at the beginning. In spite of that fact, the collection of drawings maintained the standard of past years. For this the Council of the Architectural Association could not thank them too much. The sad side of the war was very evident there because their men had largely got commissions, and the casualty lists continually contain names of those who were with them at last year's prize distribution. They could only pay a tribute to their memory by remembering them as friends and comrades with whom they were happy to be associated. A large number of the names has been published in the "Journal." The Council, as he had already mentioned, were delighted with what had been done in the Schools. For friends who did not know what the Architectural Association were driving at, he might explain that they wanted men to get hold as soon as possible of that great enthusiasm which was to be their guiding principle throughout life. They got it soon in the School; whereas if they did not join there was a period of struggling about without getting hold of anything definite—perhaps for ten years, or perhaps only get it in a very roundabout way. The great object of all study was to reveal truth, and for architects it was also to obtain a standard of judgment and of comparison which will throughout their lives be a thing by which they will judge their own and other people's work. They wanted them to get their standard high at once. Those who came into the School were surrounded from the first day of their entrance with the presentation of the finest known works of architecture. The best men that can possibly be obtained to learn from were there. In consequence, enthusiasm comes easily and soon. All these surroundings assist to make the architectural mind, and are sufficient for the students to go on with to bigger things. They should all discover there the main principles upon which they want to work as soon as possible, and stick to them. He would say most earnestly to them: "Do not be discouraged by those who criticise the tendency in modern design and throw their theories like red herrings across your path. Have absolute confidence in your teachers and in yourselves, and do the best that is in you, and on the foundation of the art you are acquiring the future of your art will be safe. Your ceaseless effort will be to express the highest conception of design you have yet received and to accept no lower standard than that in whatever work you undertake."

The following announcement of the award of prizes was then made by Mr. H. M. Fletcher, M.A., F.R.I.B.A., the prizes being distributed by Mrs. Austen Hall:—

ANNUAL PRIZE-GIVING.

Council's Awards.

First Year.—1st prize, value £1 10s., V. J. Wenning; 2nd prize, value £1 1s., H. E. Mills; prize for greatest improvement, volume of A.A. Sketch Book, F. A. McEvoy; special price, volume of A.A. Sketch Book, W. Bollancee.

Second Year.—"Howard Colls" Travelling Studentship, value £15 15s., A. Hodges; second prize, value £3, W. P. Wigglesworth; prize for greatest improvement, value £2, W. E. de Souza; master's prize, F. W. Halfhide; special prize, volume of A.A. Sketch Book, P. V. E. Mauger. The Association two-year course certificate is awarded to the following students: G. R. Galsworthy, F. W. Halfhide, A. Hodges, P. M. Hill, P. V. E. Mauger, W. E. de Souza, and W. P. Wigglesworth.

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Third Year.—A.A. Travelling Studentship, value £26 5*s.*, W. C. von Berg; "Andrew Oliver" prize (value £5 5*s.*) and President's prize (value £5 5*s.*), F. P. M. Woodhouse; book prize, value £3, F. Reixa; book prize, value £2, N. F. C. Day; master's prize, J. C. C. Bruce; master's prize, G. B. Tubbs; vacation prize, value £1 1*s.*, F. P. M. Woodhouse; vacation prize, value £1 1*s.*, C. J. Brandon; "Jarvis" scholarship, value £40, C. J. Brandon; special prize, two volumes of A.A. Sketch Book, L. H. Hutton.

Fourth Year.—Special prize, value £5, R. A. Duncan; A.A. Essay prize, value £10 10s., T. C. Evans; A.A. Entrance Scholarship, value £52 8*s.*, J. L. Shepherd (Charterhouse); Banister Fletcher Studentship, value £29 8*s.*, Jean Godwin.

The following have been recommended for Third-year Certificates of Exemption from the R.I.B.A. Intermediate Examination: N. F. C. Day, G. B. Tubbs, F. P. M. Woodhouse, and F. Reixa.

Mr. Ernest Newton, A.R.A., in moving a vote of thanks to Mrs. Austen Hall, said that probably in giving him that privilege it was thought that as President of the Royal Institute of British Architects he not only ought to be able to speak with authority on the future of architecture and the aims to be pursued in teaching students, but that it was his duty to do so. Unfortunately, election to the Presidency did not carry with it a gift of tongues and prophecy. He had seen in his lifetime so many "movements," all of which were destined to be permanent but which have had their day and passed away, that at the risk of appearing to shirk the task of pronouncing *ex cathedra* on a subject which none consider they have yet solved, he would confine himself to a few general remarks. He believed he was right in saying that vaguely they had in their minds that some form of Classic was the right thing for large monumental buildings. For churches, they balanced between a Classic and a Gothic form according to individual temperament. In designing houses architects left themselves the greatest latitude. This in itself should be enough to show that they had by no means made up their minds. Speaking personally, he could only say that his admiration for the teachers of architecture who could keep their heads and pursue a definite aim admidst this confusion knew no bounds. The teachers had to teach composition, construction, and forms and features of every known style from the Parthenon to the buildings of the nineteenth century, when architecture had been so much "revived" that it was practically moribund. One often sees in modern Classical buildings certain radical errors which could never have been acquired at the Architectural Association. For instance, a building of several storeys which is merely a nest of smallish rooms of moderate height is often treated like a temple with columns and entablature complete. Examine the plan and section and see how perversely ingenious the architect has to be to get windows for his rooms behind the entablature. Now all would agree that however fine the proportions, and delicate and learned the details of such a building may be, it was wrong as architecture. Then, again, this same type of building will have charmingly designed features, pavilions, pediments, &c., marking apparently something in connection with the plan; but when the plan is examined these are found to be merely stuck on as part of a composition. A.A. students will never do that when entrusted with the buildings of the future. They will always, he was sure, cast their buildings in a gracious mould and make their composition express the purpose of the building: they will make a bank look like a bank, a theatre like a theatre, and so on. He was sure they were taught to analyse all the features of the various buildings on which they based certain essay designs, and made to understand that these features belong only to that particular building where they occur, or to one of a like nature, and must not be annexed as part of the stock in trade, to appear in all the buildings they may be called upon to design in the future. One thing, too, that often struck him was that modern buildings have generally as many features to the square inch as old ones have to the square yard, and even more sometimes. It is a great art to leave out—not because you don't know what to put in, but because you don't want to put it in. In designing a building the indiarubber is often a more useful and valuable ally than the pencil. Although his remarks had already gone on too long, he had not yet touched upon the influence that material must have on the design, nor had he said anything about the necessity of grappling with the problem and solving it fairly and squarely without tricks and subterfuge. Even if the result is what may be called ugly, it will at any rate be true. All that was taught them in the school much better than he could put it to them. The study of modern planning was a chapter by itself. There must be, for instance, a best arrangement for all the departments of municipal buildings, just as there is for the parts of a ship—the right kind of entrance, the best position for the Council Chamber, and so on. Think if all this could be standardised, what a simple task a competition would be: all architects would have to do would be to perfect perfection. When one considers what a lot an architect has to learn it is almost incredible that anyone should have the courage to begin. Indeed, to be serious, there must be something in the discipline of an architect's training that makes for courage and a sense of duty. Some 1,600 have given up all their prospects as architects to become soldiers; and no doubt before the next session opens many more will have followed their gallant example. Many have died for their country, but no one who dies for their country has lived and died in vain. It was impossible to say what the future had in store, whether next year there would be any prizes and prize-giving. But it was that very afternoon, the present, which was engaging their attention, and in very cordially proposing a vote of thanks to Mrs. Hall he must be allowed also to congratulate the prize-winners.

Mr. Arthur Keen, F.R.I.B.A., in seconding the vote of thanks, said the Association was under an obligation to Mrs. Hall for rendering that service. He would like to emphasise what had been remarked by the President about the admirable work done in the schools, of which he saw a great deal when examining the Testimonies of Study submitted to the Royal Institute of British Architects—a large proportion of which came from Tufton Street. He was much impressed with the high standard attained, and he felt sure the school was being carried out on right lines. The Testimonies were worked out in a very resourceful way, which reflected the greatest possible credit on the masters and on the students, who did so well. The Architectural Association had to congratulate itself on the nomination of Mr. Robert Atkinson, who as headmaster was the right man in the right place. If the students could learn all that Mr. Atkinson can teach them they will be laying the foundations for a successful career. He was extremely pleased to see the Association was progressing so well, and has achieved so high a place in recent years.

The vote of thanks was carried with applause.

HERTFORD AND BENGEO.*

By T. BARNETT.

THE town of Hertford stands in a fertile valley, watered by the rivers Lea, Rib, Beane, and Maran. Authorities differ concerning the etymology of the word by which the county, the hundred, and the county town are known. Some derive it from Hartford—*i.e.*, the Ford of the Harts; others from Herudford, a Saxon word meaning Red Ford; another from the Saxon name for the military way, Herman, or Ermine, Street, which crossed the Lea at Port Hill. The old seal of the borough, three or four centuries ago, bore, as a device, a hart in shallow water.

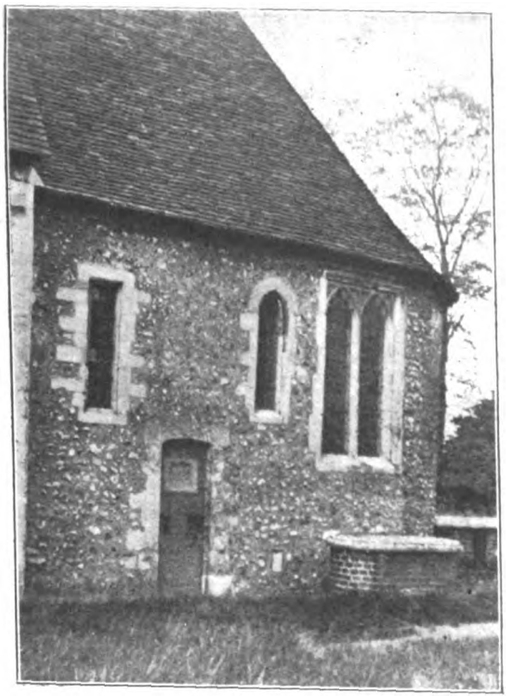
The site of the town seems to have been found favourable for human settlement even in pre-historic times, since implements of the Neolithic and Bronze Ages have been found along the valley of the Lea in the neighbourhood of Hertford and Ware. No doubt these early settlers were attracted by the facilities offered for fishing and hunting.

Little is known of the early history of Hertford. The county was not formed as a shire until King Edgar's time (957-975). It is first mentioned as such in the Anglo-Saxon Chronicle under the year 1011. The earliest event found recorded of the town refers to a grand Council or National Synod held in A.D. 673 at "Heorutford," generally identified with Hertford, which was attended by the East Saxon Kings and several Bishops. It was convened by the Primate for the purpose of "rendering all the churches in England conformable to the custom and authority of the Papal See," and he obtained the consent of the Council to the observance of certain canons for the regulation of the Church. Not until the time of Alfred the Great do we find the town coming into prominence again. In spite of the military prowess displayed by the English monarch, the Danes had succeeded in establishing themselves at the mouth of the river Colne. Forced by Alfred's army to retire to a place of greater security, they sailed to the Thames and up the

* Read at a recent meeting of the Upper Norwood Athenæum.

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river Lea, establishing a fort at Ware. Here a battle was fought in which the English were defeated, and the surrounding country was afterwards devastated by the enemy, Hertford itself being frequently sacked and burnt, the Danes penetrating as far as Port Hill, where they established a garrison. King Alfred conceived the idea of stranding the Danish vessels by constructing a dam at Blackwell to prevent the tidal waters flowing up the Lea, and at the same time dividing the stream in the neighbourhood of Waltham Abbey. He then attacked the Danes and finally expelled them from the kingdom.



ST. LEONARD'S CHURCH, BENGEO.—SOUTH-EAST END OF CHANCEL.

In A.D. 913 Edward the Elder, the son of Alfred, established a "burh," or fortified place, on the north side of the Lea, and in the following year one on the south side; thus two towns were formed, each with its own market-place. The mound in the Castle grounds is probably the remnant of the keep of Edward's fortifications. The inhabitants were made tenants in burgage, being known as burgesses. Rent and certain tolls they paid to the King in exchange for the liberty to trade. From this time until the Conquest history remains silent concerning the town.

At the Conquest William, desiring, apparently to allay the discontent of his new subjects, confirmed the cities and boroughs in their ancient liberties. During his absence on a visit to Normandy the exactions of the Barons drove the people to revolt, whereupon he introduced the military government, known as the Feudal System, in all its severity. In accordance with his design of encircling London with castles, he erected new ones or repaired and strengthened those already in existence, one of these being the Castle of Hertford, "the earthworks of which are probably of the time of the Conqueror," says the Royal Commission on Historical Monuments. Large sums of money appear in the Pipe Rolls from 1170-74 for the works of the castle and the King's houses in it; the masonry castle was probably built at that date. Of the mediæval castle a length of plain flint walling with part of an octagonal turret and a brick gate-house of later date alone remain. The defences formerly included an inner and an outer moat connected at their northern ends with the river Lea. A mutilated plan of the castle exists in the Record Office. The residential buildings stood on the site of the lawn now used for tennis-courts. The gate-house seen to-day is of late fifteenth-century date; it was much altered in the eighteenth and nineteenth centuries, and conveys no impression of the magnificence of the castle to which it was but an adjunct.

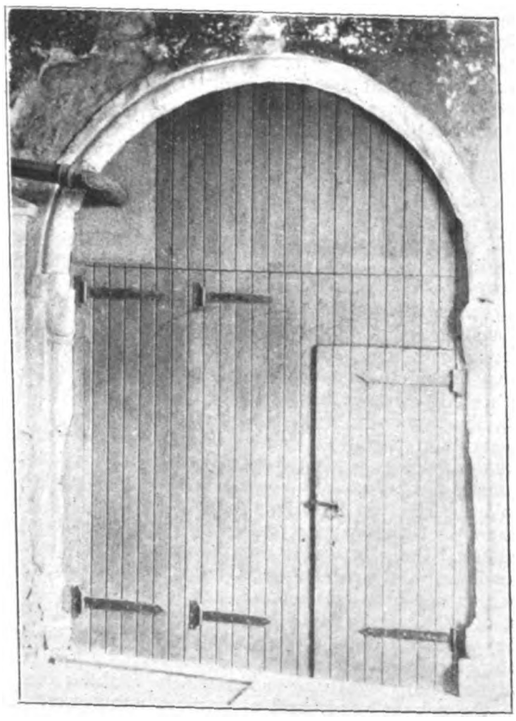
As Turnor observes, "though the castle has not experienced the vicissitudes which other Norman keeps have endured, yet its annals are not destitute of interest. The nobles who successively commanded it filled high stations in the feudal history of England, and exhibited in their lives those extraordinary qualities which distinguished the age of chivalry. Under their government the castle rose to fame and importance. Its halls often contained the high blood and the martial character of England; its towers became the retreat of captive royalty; its broad square rang with the clang of arms and the bustle of the tournament; and its solemn chapel re-echoed the peal of devotion."

It would be impossible within the limits of this paper to relate the history of the long succession of governors of the castle, but a few remarks respecting them and the more important events which took place during their terms of office may be permitted. The first governor after the Conquest was Peter de Valougies, or Valance, who was lavishly rewarded with lands and manors as a recognition of the aid given by him in the suppression of the rebellious English.

Robert Fitzwalter, of King Stephen's time, enlarged the castle and garrisoned it with his vassals, but the King, becoming alarmed at this and similar practices on the part of the Barons, dispossessed him of the castle, which remained in the hands of the Crown till the time of King John, who appointed as governor the powerful Baron, Richard de Montfitchet, but, becoming jealous of him, John substituted the Baron Fitzwalter in his place. This noble, having joined the confederacy of the Barons, was in his turn ejected from the governorship, and was thereupon chosen as general of the Barons' Army.

As a result of the efforts of the confederacy, Magna Charta was extorted from the tyrannical monarch, and Fitzwalter was named as one of the conservators of the charter. No sooner had the Barons dissolved their confederacy and returned to their castles than the treacherous John, perceiving their defenceless condition, broke his pledges and so compelled the Barons again to take the field against him. Meanwhile he committed the custody of the castle to Walter de Godarvil, with the injunction to destroy all the castles, towns, houses, and other property of the Barons.

With this end in view Godarvil proceeded to garrison the castle and to strengthen its outer works, which were soon destined to be tested by the siege of the Dauphin of

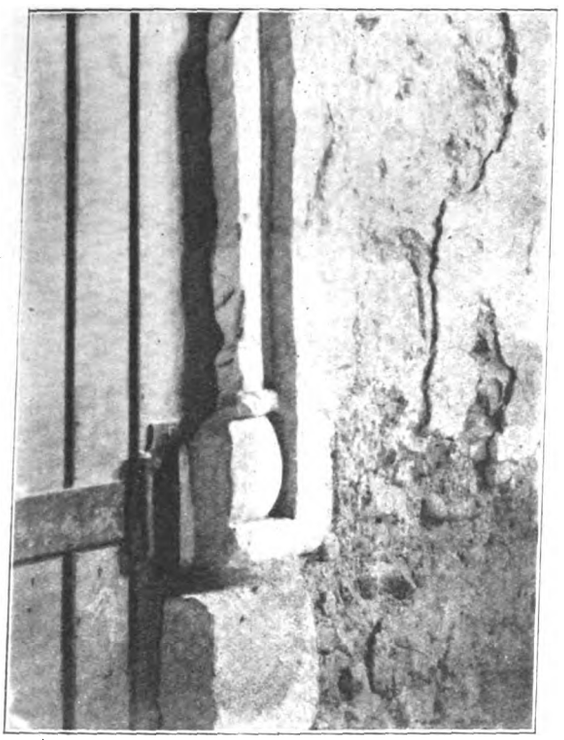


ST. LEONARD'S CHURCH, BENGEO.—CHANCEL ARCH, WEST SIDE, AT PRESENT FITTED WITH REMOVABLE WOODEN SCREEN.

France, who, at the invitation of the Barons, had landed at Dover and marched by way of London, where the citizens had delivered to him the custody of the Tower, and now advanced to Hertford. Godarvil made a brave defence, frustrated the Dauphin's attempt to undermine the walls, but at length he had to capitulate.

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The government of Peter de Thaney, who held the office in Henry III.'s reign, was made memorable by a tournament, which was proclaimed at Hertford by the Earl of Pembroke, "a principal and most potent peer in the realm." It was attended by an immense concourse of spectators, and was produced in a style of great splendour and magnificence. Unfortunately the gaiety of the scene was marred by no less a disaster than the death of the noble Earl himself, who was thrown from his horse and dragged



ST. LEONARD'S CHURCH, BENGEO.—BASE OF SOUTH SHAFT, CHANCEL ARCH, WEST SIDE.

about by the stirrup. He was carried to the Priory, where he expired the same evening from his injuries. Another governor, William de Valance (*tempore* Henry III., A.D. 1251), seems to have been a somewhat disreputable personage, for Matthew Paris openly accuses him of the crimes of homicide, rapine, and gross oppression, and tells a pretty tale against him. After hunting without leave in the grounds of Hatfield Palace, then the residence of the Bishop of Ely, he forcibly entered the house, insulted the domestics, broke open the cellars, and, after distributing wine and ale to his associates, left the rest to run to waste on the floor.

During the reign of Edward III. the castle had the distinction of receiving two royal prisoners—David Bruce, King of Scotland, who spent eleven years there in captivity, and John, King of France, after his capture at Poitiers, for whose amusement, we are told, a series of entertainments was devised.

In the next reign it was to Hertford Castle that Henry, Duke of Lancaster, and his adherents repaired to deliberate how they might best deal with Richard II., whom they had made prisoner. We know how Richard was deposed and the Duke ascended the throne as Henry IV. The castle was bestowed on his second wife, and afterwards on the Queens of Henry V. and Henry VI.; the latter King kept Easter there in 1429.

Coming to the time of Henry VIII., we find that a survey of the castle was made by his direction; the document gives a short but interesting description of the place, and recommends certain repairs, estimated to cost £40 or £50. Henry, however, seldom stayed at the castle more than a day at a time.

It was from this castle that Edward VI. was escorted by the Earl of Hertford and a glittering train of nobility on his way to Enfield Palace, and thence to London for his Coronation. The Prince was also accompanied by the Princess Elizabeth, who, after his death, made repeated visits to Hertford, where she lodged at the castle, and was entertained with "maskings, sports, and mummeries."

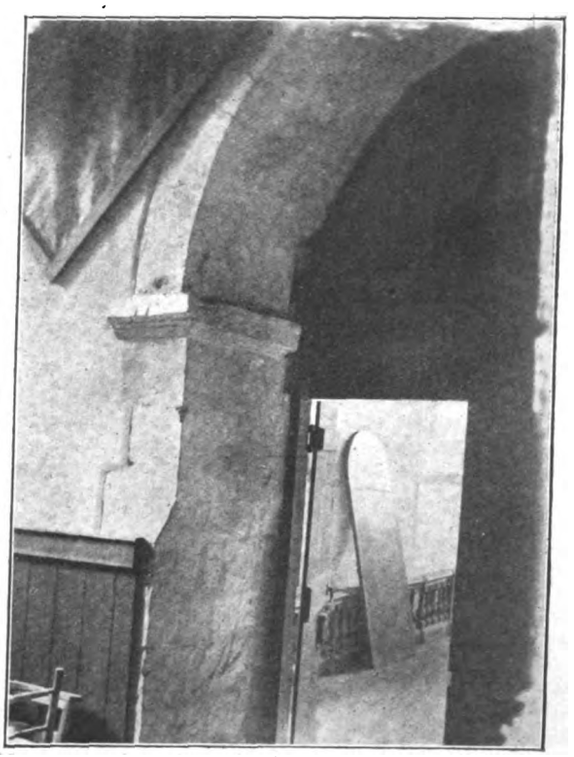
Soon after this time the terrible Plague broke out in London, when Parliament and the Law Courts transferred their sittings to Hertford Castle. In the thirty-first year of her reign Queen Elizabeth granted a new charter to the town and also a coat-of-arms.

No further mention is made of the castle till the seventh year of the reign of King James I., when, in 1609, a commission was issued for the purpose of ascertaining its extent, &c.; from this we learn, amongst other things, that there was standing upon part of the site "one faire gate house of bricke, one tower of bricke, and the old walls of the said castle." It is these we have seen to-day. In the reign of Charles I. the castle was made over by charter, passed under the Privy Seal, to William Cecil, Earl of Salisbury, and after being leased to various families is now used for municipal purposes.

THE BOROUGH.

Through the kindness of his Worship the Mayor we have been allowed to see the various charters granted to the borough, and I venture to think that a few remarks on the origin of the boroughs and the evolution of their constitution, with special reference to that of Hertford, may not be unacceptable to you.

In Anglo-Saxon times our island was parcelled out among the military followers of the conquering chieftains. Society was comprised of two main classes, noble and plebeian, the latter made up of serfs or villeins, the churls, who were the small farmers and labourers, and the mechanics and artisans residing in the burghs or cities. The artisan and trading class seem to have had no recognised status in society, and being always liable to the depredations of the roving bands of mercenaries, who set all legal authority at defiance, led a very precarious existence. The inhabitants of the towns or burghs were at length obliged to place themselves under the patronage of a noble, who, in exchange for an annual rent paid to his reeve, gave them his protection. As trade increased the patron found it was worth his while to defend his new vassals; hence the erection of the fortified Saxon cities, known as Burghs, and later as Boroughs, the inhabi-



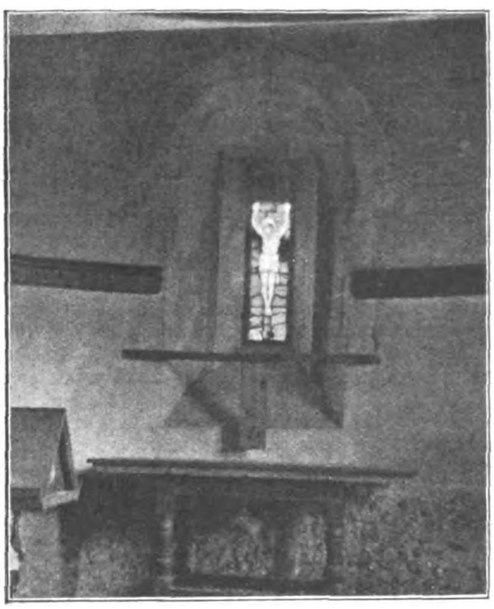
ST. LEONARD'S CHURCH, BENGEO.—CHANCEL ARCH, EAST SIDE.

tants of which were called Burgesses. Poor at first, the towns improved under the fostering care of King Alfred.

Domesday Book shows the number of resident burgesses of Hertford as 146 at the time of the survey—a good sized town for those days. The Conquerer, in parcelling out the land he had won, therefore included the towns in his royal demesne, gave them charters of incorporation, including jurisdiction, and providing for the payment of a fixed rent, payable direct, to avoid the exactions of the sheriff. Hence arose the name of Corporation by which these public

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bodies are known. He empowered them to choose yearly one of their number to be called a reeve or bailiff to collect the King's rents, tolls, and customs, and to be for the time being the chief of the corporation; the King granted him an allowance of twenty shillings for a gown. Borough courts, with officers to carry out the bye-laws, were appointed, and it was enacted by William I. that no fair or market should be held elsewhere than in the cities, boroughs, or walled towns, hence these places gained greatly in security and popularity as trading centres. In Edward III.'s reign a Royal Commission was appointed to investigate the privileges and customs appertaining to Hertford. It declared that the castle and borough were held of the King *in capite*, by which tenure the community were bound to find an armed man to serve in the wars, and to send two burgesses to Parliament; it stated, too, that the porter of the castle



ST. LEONARD'S CHURCH, BENGEO.—EAST WINDOW OF APSE.

should be appointed by the King, and that he should receive the sum of £3 8*s*. per annum for the custody of the gate. It is also stated that before the time of the Barons' War neither horses nor carriages were allowed to pass over the Bridge of Ware except with the licence of the bailiff of Hertford, and by payment of toll to him. During the Barons' War Sieur de Quincy, afterward Earl of Winchester, whom, says Matthew Paris, "the King hated worse than viper's blood," broke the chain guarding the bridge and laid open the gate, thus causing the line of the great road to be carried through Ware, which suddenly rose from a small village to a populous and thriving town, much to the detriment of Hertford. In succeeding reigns we find several enactments which affected the towns; by an act of Henry IV.'s reign no man whose land was valued at less than twenty shillings a year might bind his son apprentice to any trade; this provision was due to the jealousy of the Barons, who feared that trade would draw too many men from the land and thus weaken their influence.

Henry VII. ordered that standard weights and measures of brass for the use of the county should be kept at Hertford; he greatly reduced the power of the Corporation by prohibiting their right to pass bye-laws without the Royal assent. No other change occurs in the constitution of the borough till Queen Mary's charter, which authorised the holding of certain courts and three fairs annually.

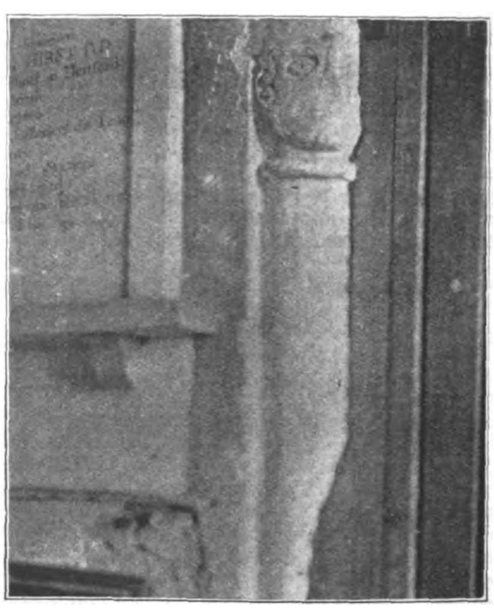
Queen Elizabeth's charter granted a seal and a coat-of-arms (argent, a hart couchant in a ford both proper), with power to break the seal and alter the device at pleasure.

The peculiar feature of James I.'s charter was the change it introduced in the tenure of the borough. Knights' service was given up and the tenure was declared in future to be by fealty only, in free and common socage, and an annual payment of 2*s*. for the Town Hall and 6*s*. 8*d*. for toll to the Crown. After this James decreed that a toll of corn might be taken by the Mayor and Corporation of all corn and grain brought into the market for sale. This was a kind of local excise. In 1621 the same monarch granted to trustees for Prince Charles all the honour, castle, and town of Hertford for a period of ninety-nine years. The last charter received by the borough was granted by Charles II., that monarch having compelled the borough, in common with many others, to surrender its former charter. He granted a new one only at great expense. Worse still, he assumed the right of naming the first officers to whom the government of the borough was in the first instance to be entrusted, and reserved to the Crown the right of removing at any time any of the officers of the Corporation and of excluding such burgesses as became disagreeable to the government. As the members of the Corporation were the electors of the Parliamentary representative of the borough, this representative thus became the nominee of the King. Hallam describes this confiscation of the municipal charters as "the most dangerous aggression on public liberty that occurred in this reign." Happily these offensive clauses were expunged by James II., who reinstated corporations in their ancient rights. Hertford continued under the governance of this charter till 1835 when all corporations, except London, were brought under the provisions of the Municipal Corporations Act then passed.

In the charter of Charles II. it was provided that two serjeants of mace were to be appointed to carry before the Mayor "as well the sword as the mace, of gold or silver, engraven and adorned with His Majesty's arms." The privilege of carrying a mace before the chief magistrate is considered a mark of honourable distinction towards those bodies who are so authorised." Many corporations have but one mace, or two maces and no sword. Hertford seems in this respect to have been promoted in dignity in successive charters, for that of Elizabeth prescribed one mace, that of James I. two maces, and that of Charles II. a sword and a mace.

In our perambulations it will have been observed that Hertford contains a number of old houses, dating back to the sixteenth century; a house of late seventeenth-century date in Fore Street is decorated with large plaster panels of acanthus foliage modelled in relief (known as pargetting work).

Hertford has been unfortunate in its religious houses, for it possessed a priory, founded at the time of the Conquest, and five churches, all of which have disappeared. The existing churches are all modern, although St. Andrew's and All Saints stand on sites of ancient edifices.



ST. LEONARD'S CHURCH, BENGEO.—CHANCEL ARCH, NORTH CAPITAL AND SHAFT.

Hertford is famous for its schools. The buildings of Christ's Hospital, popularly known as the Blue Coat School, now used for girls only, are mostly quite modern, only small portions of the seventeenth-century structure remaining. Hale's Grammar School, built in 1616, has educated a number of eminent men, including Baron Nathaniel Dimsdale, son of Baron Thomas Dimsdale, notable for his experiments in the method of inoculation for smallpox, and Alfred Wallace, the great naturalist and contemporary of

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Darwin. Henry Chauncy, the distinguished historian of Hertfordshire, was nominated Recorder of the Borough in the charter of Charles II., and is supposed to have resided in the ancient house, now called "Lombard House."

Between Hertford and Ware is a field memorable as the spot where Cromwell put an abrupt end to the meeting of the "Levellers" by shooting a ringleader named Arnold at the head of the regiment.

Mr. Harper, in his paper on Dartford, referred to an old paper-mill there, which I think he said claimed to be the oldest in England. It may, therefore, be interesting to mention that Hertford also claims to have possessed the first paper-mill erected in England. In a note to a poem called "A Tale of Two Swannes," printed by Caxton in 1590 on paper made by John Tate, it was stated that this person's paper-mill was situated at Hertford, and that in the time of Henry VIII. there was a paper-mill at Hertford which belonged to John Tate, whose father was Lord Mayor of London. Some reference is made to this mill in the Privy Purse expenditure of Henry VII. for 1498. It was situated on or near the site of the present Sell Mill, where a mill has existed since the year 1086.

Bengeo (written as Belingehon in the eleventh century) is, according to Cussans, a corruption of Beningho, signifying the high land near the meadow of the Beane (Ben-inghoe).

As I have read a full description of the architecture of the old church of St. Leonard's on the spot, I will simply repeat that the building is described in the Inventory of Historical Monuments of Hertfordshire, made by the Royal Commission, as being valuable as a typical example of the plan of a small twelfth-century church. The chancel arch is of that date, as is the east window; other windows range from the thirteenth to the fifteenth century. In the chancel there are the remains of a very small piscina, and in both the chancel and the nave may be seen the remains of ancient wall paintings.

A doorway or low window on the north side of the chancel is supposed to have communicated with an anchorite's cell.

To-day, as you have seen, much is changed in Hertford since the time when the town was called upon to resist the furious onslaughts of many and varied foes. The river Lea meanders peacefully through its meadows, with no fear that Danish warriors will appear on its waterway to destroy and harry the countryside, and the sighs of royal captives are no longer wafted from the castle on the breeze to their distant homes in France and Scotland. The old tilting court has become a pleasance for the citizens, the chief of whom excel in the arts of peace and conquer men's hearts by brotherly kindness and hospitality. Coming as strangers to Hertford we found the Mayor, Mr. A. Purkiss Ginn, and the Town Clerk ready to show us their civic treasures, which we have all enjoyed seeing this afternoon, and Mr. R. T. Andrews, a veritable storehouse of knowledge, which he placed most generously at our disposal. I wish to offer most hearty thanks to all these gentlemen and to wish the town of Hertford all success and prosperity in the future.

"OWEN JONES" PRIZES FOR INDUSTRIAL DESIGN.

THIS competition was instituted in 1878 by the Council of the Royal Society of Arts, as trustees of the sum of £400, presented to them by the Committee of the Owen Jones Memorial Fund, being the balance of subscriptions to that fund, upon condition of their spending the interest thereof in prizes to "Students of the Schools of Art who, in annual competition, produce the best designs for Household Furniture, Carpets, Wall-papers and Hangings, Damask, Chintzes, &c., regulated by the principles laid down by Owen Jones." The prizes are awarded annually on the Report of the Examiners in the National Competition of the Board of Education.

Six prizes were offered for competition in the present year, each prize consisting of a bound copy of "The Leading Principles in Composition of Ornament of Every Period," from the "Grammar of Ornament," by Owen Jones, and the Society's Bronze Medal.

The following is a list of the successful candidates:—

Buswell, John B., School of Art, Nottingham, for a Design for a Machine-made Lace Curtain.

Howells, Frederick W., Broad Weir School of Art, Bristol, for designs for Tile Fireplaces.

Wheeldon, William H., School of Art, Morecambe, for Designs for Printed Cottons.

Rowe, John H., School of Art, Dudley, for a Design for a Stencilled Hanging.

Brocklehurst, Harry, School of Art, Macclesfield, for Designs for Furniture Silks.

Grainger, Harold, School of Art, Macclesfield, for a Design for a Printed Linoleum.

The examiners who judged the works submitted for this competition report that "Generally the standard of merit is equal to that of last year, although there is a slight improvement in the treatment of colour.

"Whilst a considerable number of the designs show too close a resemblance to well-known historic examples, which, in some instances, have not been intelligently studied, there are some which are original in treatment and at the same time adhere to the principles laid down by Owen Jones.

"The most successful among the competing works include examples of lace, woven silks, tiles, linoleum, embroidery, and carpets."

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

ON Friday, July 16, about 20 members of this Society accepted the invitation of Mr. W. V. Betts, architect to the Nottingham Co-operative Society, to inspect the steel construction and fireproof flooring at their premises now being erected in Parliament Street, Nottingham.

Mr. Betts explained the plans and drawings, and then conducted the party over the building.

A *café* has been provided in the basement, shops on the ground floor, with department stores on the upper floors, all connected with suitably placed staircases and lifts.

In order to reduce the fire insurance premiums the floors are mainly in reinforced concrete, Fawcett's "Monolithcrete" system being adopted, and fire sprinklers will be provided throughout.

Although the floors are divided practically into three main divisions by curtain walls, these have been so arranged that at any future time they may be altered in position to suit requirements, without interfering with the construction of the floors. The whole weight of the floors and superimposed loads are carried by the system of girders on to main piers and steel stanchions which extend the full height of the building.

The difficulty of successful ventilation lighting in the basement owing to the great difference in the levels of the back and front streets has been carefully considered.

The front in Parliament Street will be an imposing one in buff terra-cotta, with large display windows.

At the conclusion of the visit the President of the Society, Mr. Harry Gill, complimented Mr. Betts on his carefully thought out building, and thanked him for so fully describing the points of construction, and also for kindly inviting them to take tea with him.

Mr. G. H. Widdows, Derby, endorsed the vote of thanks, and in his reply Mr. Betts mentioned that the Nottingham Co-operative Society had acted most patriotically in deciding to proceed with the building notwithstanding the war, in order to keep the building trade in employment. He invited the Society to visit the premises on completion, and then pass their opinion upon them.

MONUMENTS OF ART IN THE EASTERN THEATRE OF WAR.

THERE is so far practically little or no definite information as to the effect which the ravages of war have had on the monuments of art and history in Galicia and Poland. Unless, however, our ideas of the stubborn and desperate struggle now being waged in the Eastern theatre are absolutely erroneous, we may reasonably assume that both these provinces, which have time after time been swept by the movements of the opposing armies, must now lie utterly waste, their architectural features destroyed or damaged on a scale that may yet prove to surpass in magnitude even the horrors of destruction in France or Belgium.

Poland and Galicia are extremely little known in this country, and it would not be an exaggeration to say that in the eyes of the man in the street they are merely two backward provinces, half Eastern and half European, which possess no claim of their own to any special interest on the part of the cultured world, except to that bound up with political considerations. In point of fact, however, both these countries, and Poland in particular, have been closely connected with the rest of Western Europe ever

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since the Middle Ages, and their participation in the common European culture and life has always been intimate and active. How far back this association with the Western culture goes may be judged from the fact that Poland still has preserved not a few Gothic churches of the tenth century. This single claim should be sufficient to secure the interest towards the country at least of the architectural profession. And, as the following lines will indicate, the art treasures endangered by the operations at the Eastern theatre are so great as to make every art-lover directly concerned in their safety and preservation. It is satisfying to know that Russia has shown herself fully awake to the importance of taking prompt and comprehensive measures for dealing with the problem. Soon after the opening of hostilities a special committee was sent to Poland and Galicia to draw up a list of all the ancient monuments, collections of works of art, &c., while another committee under the chairmanship of a member of the Duma was endowed with special powers for dealing with works of art abandoned by their owners or otherwise endangered. Seeing how numerous are the palaces, castles, and magnificent villas both in Poland and Galicia, and how valuable are the private collections owned by the Polish nobility in both provinces, the importance of these measures can hardly be exaggerated.

In the absence of any available information as to the losses already suffered by art in the East, the following notes on the architectural monuments in the war zone will perhaps suggest the extent of the danger to which those provinces are exposed.

Galicia is a more backward country compared with Poland. It has, however, a number of cities such as Lvov (Lemberg) and Cracow, which have long been the centres of its political and spiritual life, and reflect the history of the country in numerous mediæval and comparatively modern monuments.

Lvov, the capital of the province, presents a rich variety of styles. Poles, Italians, Germans, Russians, Greeks, all left their mark upon the city. The most conspicuous mark however was left by Count Potocki, whose architect De Witte, adorned the city with a great many magnificent buildings in the style of the Polish baroque. Renaissance influences reached Lvov in the sixteenth century, but very little has been preserved of the later classical and Empire period. In addition to the fine erections in Lvov, such as the St. Jur's Cathedral, the Boim Chapel, the Bernardine Church and several private houses, there are many beautiful castles and palaces in the country, as, for instance, in Suceava (of the sixteenth century), Zolkiew, Krasic, and others, whilst in the small towns around Lvov there may be found some extremely interesting town-halls in the baroque style. The Russian influence is noticeable in a number of stone churches, and particularly in the old wooden churches which thus formed a branch of the remarkable wooden architecture of Russia.

In the part of Galicia occupied by the Austrians, Cracow is the most important city. It abounds with ancient monuments, and is one of the most precious relics of the Polish history for the Polish national consciousness. In the beginning of the war the Austrians were reported to have mounted guns and machine-guns on the towers of the Cracow Cathedral and the old castle of the Polish kings. The fact aroused great indignation amongst the Poles, and various public bodies vigorously protested against this action of the Austrian Government. The Pope himself was asked to use his influence with the Emperor for the purpose of removing the guns, which he willingly did, but with what success remains unknown.

Turning to Poland, we are able to give more detailed particulars of architectural work in the country. For this we are indebted to an account in the *Apollon* by M. Lukomsky, who describes most of the towns whose baffling names so often recur in newspaper reports and whose identity, so far as it may interest the architect, will now be disclosed.

The oldest churches remaining in Poland were built in the Romanesque and Gothic styles of the tenth, eleventh, and twelfth centuries. Next in chronological order were the Gothic churches of the thirteenth, fourteenth, and very often fifteenth centuries, which in most cases had two naves. Churches of the Renaissance manner of the sixteenth and the first half of the seventeenth centuries are less often met with, but baroque churches of the following period extending to the middle of the eighteenth century are very numerous.

Poland abounds with castles of the twelfth, thirteenth, and more often the fourteenth, fifteenth, and even the sixteenth centuries. In most cases they lie in a state of ruin, though their typical Gothic appearance, with round towers, buttresses, and turrets has been fully preserved. The Renaissance castles of the seventeenth century have also suffered from time considerably.

The oldest palaces and mansions date from the sixteenth and seventeenth centuries. More numerous are those of the eighteenth century, and still more numerous are the classical ones of the end of the eighteenth century in the style of the Polish "Louis XVI."

Private houses which form beautiful *ensembles* of squares around town halls date with these latter from the seventeenth century. There are charming houses also of the eighteenth century.

After this general survey the following particulars of various towns may here be quoted.

One of the most picturesque towns on the river Vistula is Plock. Small though it is in size, it has enjoyed considerable popularity as one of the best towns in the country ever since the sixteenth century, from which time it has preserved a great number of its buildings. The central area makes up a Kremlin-like group which contains a cathedral of the sixteenth century, having a wonderful altar and belfry, an episcopal palace of a good classical design of the end of the eighteenth century, a twelfth-century Benedictine church, a town hall and innumerable old houses surrounding it in narrow streets.

Near Plock a little townlet of Pultusk has an interesting town hall. In Sayni an ancient church should be noted. Wloclawek is rich with antiquities, but its church is particularly good. Ciechanow is interesting for its Gothic church and the fine ruins of a castle. In Mlawa, which has changed hands so many times, there are old churches and the palace of the Princes Czartoryjski. Ianof, near Mlawa, is a charming manor-castle. Siedlce has a town hall of the eighteenth century and a number of old churches. Kazimierz is one of the most ancient towns of Poland, and has preserved a great many old buildings. The feature of the place is a picturesque square bordered by little houses of the sixteenth and seventeenth centuries. There is also a castle and a tower. In Lomza the sixteenth-century cathedral, founded by Prince Mazoviecki, is distinguished by noble architecture, and includes remarkable tombs of the same period. The town hall, the ruins of the castle of the Princes Mazoviecki, and some private houses should also be noted. Lublin is popular in the history of Poland. The church of St. Nicolas, situated in the environs of the town, dates from the tenth century. The Cracow Gates are very interesting, and particularly so is the former Royal castle, now used as a prison, with its magnificent frontage and huge tower in the classic style. The cathedral, the Jesuit tower, town hall (with a charming front in the Louis XVI. style), law courts, the Carmelite and the Dominican churches, the Trinity tower, the famous church built by Vladislaw Jagailo, and many other buildings are all historical and artistic treasures which, it is to be hoped, are still, and will be left, intact. There should also be noted the castle in Biela and the mansion of the Princes Radziwilow in Openagur, both places being in the environs of Lublin. In Pulawy we find a remarkable palace of the eighteenth century, in Lubaztow a palace in the style of Louis XIV., in Kruga a fine collegiate and town hall.

Zamosc, together with Sandomierz and Kazimierz, is one of the most valuable preserves of ancient architecture. It has an episcopal palace, a wonderful old square, a castle, a town hall, and many private buildings of great beauty. Sandomierz is particularly known for its town hall with ancient cellars, a college, and a church. The town presents a charming panorama, situated as it is on a high hill, and abounding with churches. Opoczno has a castle. Bendin, Michow, and Pincow also possess picturesque ruins of castles. In Opatow there are interesting gates, a castle, and a collegiate with ancient tombstones.

In contrast to these places Radom is a poor, miserable-looking town, and together with Petrokow possesses no historical interest. Kielce is richer in art monuments, and it is to be greatly regretted if any damage has been done to its castle in the Renaissance style with a beautiful mansard roof and valuable portrait galleries inside. The episcopal palace and the belfry also deserve mention.

Wislica, Stopnica, Szancala, Strocisk, Chibica, Skotniki, Kurzalow, and other townlets possess fine churches

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dating from the fourteenth century, and having two naves, as was the custom in the Gothic church-construction in this country. In Andrzejow we find a wonderful Cistercian monastery built by Kazimir the Great. Chencini has a fine castle and arsenal.

In Czestochowa there is a magnificent castle (even two—an old and a new one) on the Piaskow hill, and a famous church-monastery. The city is very ancient, and is greatly revered by the Polish nation for its historical memories. What its present state is under the German rule can only be conjectured.

Veljun has a notable town hall. Interesting monastery-chapels are in Bszow (the fifteenth century), Skalmierz (the thirteenth century), and Konin (the fifteenth century).

Kalisz is also an ancient town, but no monuments of its past have endured to our day. The modern town occupies a new site, and is very prosaic in its clean and orderly appearance.

Skierniewize contains a palace in the Renaissance style of the seventeenth century, unfortunately rebuilt. Sieradz, Bodzentin, Przedborz are all interesting towns with old houses. In Przedborz there is a fine bazar building, in Bodzentin a castle and a church of the fifteenth century with a splendid altar of the sixteenth century.

The castles in Czersk, Chencini, Ogrodzenz (of the fourteenth and fifteenth centuries), as well as in Bochotinz (near Kazimierz), are some of the best in Poland.

Ossolinez, as well as Krasnostaw and Oleszin, Siedlce, Drzeviza, Czernia, and Olstin, and other townlets and villages near Cholm are all interesting places of the sixteenth century.

Augustowo, which formerly was the administrative centre of the province, founded in honour of Augustus I., possesses considerable historical interest. Szczuczin has a good priorate church and collegiate. Ostrolenk is interesting for its fifteenth-century Gothic churches.

Of the places enumerated above, Plock, Lublin, Kazimierz, Sandomierz, Zamosc, and Czestochowa are perhaps the richest in old work. But, as our description so clearly shows, the whole country abounds with monuments of the past, the majority of which, though little known outside Poland, are of extreme importance to the student and lover of art.

DUNDEE OLD TOWN HOUSE.

THE possibility of the old Town House of Dundee being swept away in the course of an impending municipal building scheme should arouse something wider than local interest. And the opposition to the proposal which has been set on foot by the local Institute of Architects would, we expect, be strongly reinforced should any need arise. The building was designed in 1730 by William Adam, the father of the famous brothers, of whom it is said: "He became so eminent in his profession that he had no equal in this country, whereby he acquired a handsome fortune with an unspotted character." His "Vitruvius Scoticus," in which nearly 100 of his own designs were illustrated, exercised a strong influence on the eighteenth-century architecture of Scotland. Though chiefly known as architects, the family have helped to make history during seven centuries, and include prominent soldiers, statesmen, ecclesiastics, and politicians. The present representative of William Adam's family is Sir Charles Elphinstone Adam, first Baronet, Lord Lieutenant of Kinross, and formerly Chancellor of the Duchy of Lancaster.

The members of the Dundee Institute of Architects have sent to the Secretary of State for Scotland a memorial, which is signed by Mr. Chas. G. Soutar, the President of the Dundee Institute, and Mr. William Salmond, the Hon. Secretary, in the following terms:—

1. The Dundee Institute of Architects (allied to the Royal Institute of British Architects) respectfully memorialise the Secretary for Scotland against making any Provisional Order in terms which would empower the Corporation of the city of Dundee to demolish the old Town House of Dundee.

2 The old Town House is one of the very few remaining buildings of both architectural and historical interest in the city, and occupies a central and commanding situation on the south side of High Street. With the old Town House the history of the progress of Dundee is inseparably associated. It was erected in 1734 on the site of the fourth Tolbooth of Dundee, which was built about 1563.

3. In 1730 the famous architect, William Adam, reported that the old Tolbooth was in a dangerous condition, and ought to be removed. At the request of the Town Council he submitted plans for a new Town House, and the building, as we have it to this day, was afterwards erected to his designs. The old Town House is probably the masterpiece of William Adam, and is one of the finest examples of civic architecture in this country. An illustration of this building is included in "Vitruvius Scoticus," the principal record of Renaissance architecture in Scotland. The beautiful proportions and refined details of the façade, together with the grace and dignity of the spire, make the building of very special interest to architects.

4. In 1913 power was obtained under the Dundee Corporation (Improvements and Tramways) Act, 1913, to deal with the central area adjoining the Town House, and lying between High Street and Shore Terrace, and from the condition of many of the buildings within that area, and the over-density of the population, it is desirable that some improvement should be carried out. The deposited plans show that proposed new streets were to be laid out within that area, and that these new streets would not interfere with the old Town House.

5. After that scheme had been sanctioned, Sir James K. Caird, Bart., gifted to the community £100,000 for providing a City Hall and Municipal Buildings, and the site selected for these buildings lies to the south of the Town House, and extends along Shore Terrace. In the scheme for the new City Hall, prepared by the City Architect, the principal entrance will be from a square immediately behind the Town House, and on a level with High Street, and the east and west sides of this square will be formed by new buildings, containing shops and offices. Entrance from the High Street will be by roadways of about thirty and thirty-seven feet wide respectively on each side of the old Town House.

6. The memorialists have always viewed with apprehension the prospect of any scheme for the reconstruction of this central area which would involve the demolition of the old Town House, and they observe that it has been advocated in the Town Council that the building should be demolished, although the question of its removal has never been submitted to the citizens, and, it is believed, would not be approved of by them. By the courtesy of the Town Council, the memorialists have had the opportunity of examining the plans of the new buildings in the proposed square, and while the City Architect has stated to them that it is not intended meantime to remove the old Town House the memorialists consider that the scheme has been drafted having in view its ultimate removal. They therefore respectfully submit that in order to properly safeguard the old Town House it should be provided that any scheme for altering or demolishing it should first be definitely laid before the citizens, and that the sanction of H.M. Office of Works, the custodians of ancient monuments, should be obtained.

NURSLING.*

POSSIBLY, had we considered the matter more closely, we might have selected a place less reminiscent than Nursling of the fire and sword of invading Huns. But, if anything could tend to soothe an anxious mind, it would be the brooding peace of this delightful scene. To our minds few places in Hampshire can compare in beauty with the slumberous marsh lands of the river Test, or excel them in the interest and variety of their association with the historic past. The very name of Nursling is reminiscent of its Saxon origin, since we learn on no less an authority than Shore's "Hampshire" that: "Some of the most important of the early settlements are recognised by the term 'ings,' or places where extensive meadow land is marked by such place names as Eling, Basing, Wymering, &c." At Nursling, it must be remembered, the last of the Hampshire pixies was seen by a man whose son described it to a former Rector, in the year 1850, and here, down to quite modern times, were lit some of those midsummer fires which are, we read, "the survival of a very ancient custom, dating from Celtic times, which has only within a century or two become extinct in this county, and can be traced to the religious observances of the Belgæ, who have left the remains of their funeral piles all over Hampshire." This, in itself, should be interesting for our purpose, when read in regard to the

* A Paper read by Mrs. Suckling at a meeting of the Southampton Rambling Club.

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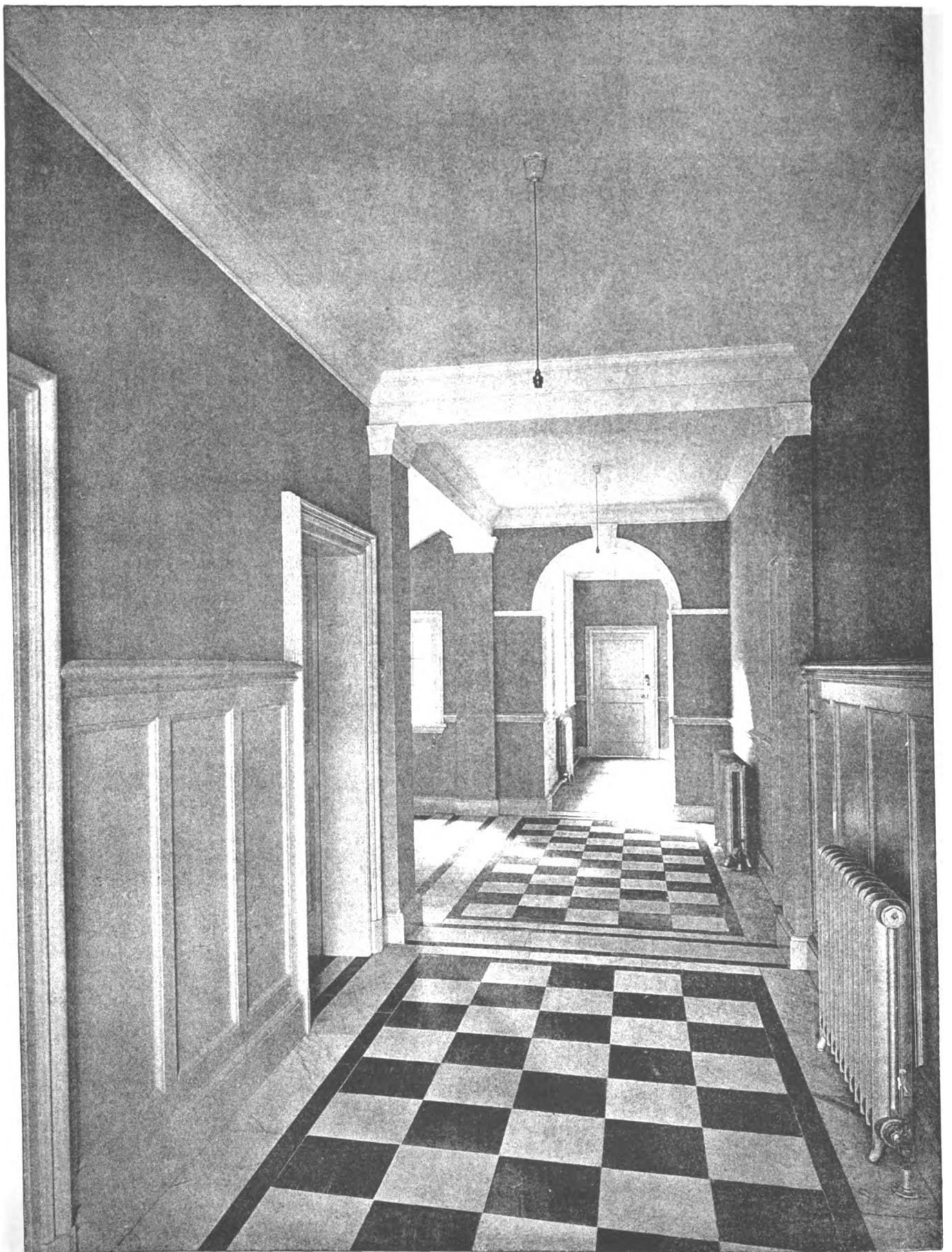
old midsummer customs prevailing here in the past. But when we add to it the statement of an unimpeachable authority that "horses' teeth have been obtained from places of old internment at Nursling" it becomes doubly so, especially when it is remembered that the Belgæ, who settled in this kingdom some centuries before the Christian era, "burnt, with fire, the bodies of their chiefs and sacrificed horses." Moreover, we approach Midsummer eve, and this meeting is held in close proximity to an ancient grove. At all events it must be conceded that Nursling has every right to the respect due to its undoubted age, since it was among the Hampshire villages that were sites of British settlements before the coming of the Romans, where much land was cultivated for corn-growing, and there were "under ground granaries—such as that discovered at Nursling, near Southampton, on a Romano-British site, where a considerable quantity of wheat was found, black with age." In this parish are also earth works known as "The Walls," which Dr. Williams Freeman's most interesting book—"Field Archæology"—calls "the site of a Roman settlement." The walls are said to be in the vicinity of a well-known Roman road crossing the Test at Nursling mill. Its route is traced in the map of Dr. Freeman's book, where he quotes from Mr. Crawford's interesting account of the "Roman road from Winchester by Otterbourne, Nursling, Cadnam, and Stony Cross to Pool." Our local historians have a sad grievance against the Victoria History of Hampshire for its rejection of the time-honoured belief that Nursling's "Cold Harbour Lane" is of Roman origin, but they have been somewhat comforted by Dr. Williams Freeman, who says: "Of the fifteen places so named in Hampshire the majority are within half a mile of proved Roman roads, some of them being much nearer. . . . In view of these facts, the note in the V.C.H. Hants (Vol. I., p. 349) throwing doubt on the connection of the name with things Roman seems hardly justified." A writer in the Surrey archæological collection believes that "Cold Harbours are found near old British track ways and Roman roads." Adding that "the word 'cold' is derived from the Celtic 'Col,' a chief principal, and Hepebenza (Saxon), a resting place." In close vicinity to Cold Harbour Lanes, Nursling, is an elevation known as Toot Hill, with an earth work and spring, called the Roman Well. It is believed to have been a Celtic look-out, and in mediæval documents is called a Toot Hill Beacon, so used from time immemorial. It would be not a little interesting to know what part Toot Hill played at the time of the Saxon invasion when they landed on the western side of Southampton Water, A.D. 519. It is said that they were on that occasion materially helped in the final defeat of the Britons by the "good Roman road, along which they could pass from Lepe to the north of Eling, where it joined another Roman road which crossed the Test at Nursling." And if this was the case, the Saxons must actually have passed over this ground on their way to the decisive battle of the "Bloody Marshes." In his "Places of Hampshire," Mr. T. W. Shore says: "One of the results of the Saxon conquest was the renaming of British villes." But he makes no allusion to Nursling in the list. In the year 687 it was written Nuaescelle; in A.D. 1170, Notcelling; Domesday calls it Notheseling; while in mediæval times it was Nutshalling. The exact situation of St. Boniface's monastery at Nursling is a matter for conjecture. By some authorities it is said to have been on the site of the present Manor House; by others "near the Walls." The Saint, who was born in Devonshire about 680, was sent for his education to the monastery at Nutescelle at the age of seven, when the Abbot, seeing so beautiful a child, called him "Boni-face." After his ordination he went as a missionary to Frisia, but returned to be Abbot of Nutescelle for two years, and was finally martyred in Frisia, A.D. 755. His monastery here was totally destroyed by the Danes under Swein in 1006, when they swept down the Test in their flat-bottomed "coels," burning and pillaging as they went. The manor of "Nursling Priors" is so named from its connection with the Priory of St. Swithun at Winchester, to whose monks "five mansae here" were granted in the year 877, and so continued in their possession until the dissolution of religious houses in 1545. The Manor House, inhabited in monastic times by the bailiff or representative of the Priors, is believed to occupy the site of a thirteenth-century house, and to stand upon cellars with groined arches, and to possess an underground passage to the Grove. Mr. H. R. Withers (the present tenant), in digging for a well some years ago, came, at a depth of 7 feet, upon stone arches in the ground of the Manor House. By the kind invitation of Mr. and Mrs. Withers this old Manor farm will be visited, when he will show and tell this meeting much that is interesting. But he will not, I am sure, add that he is related to the Hampshire poet, George Wither (born 1588, died 1667), who wrote the well-known lyric, "Shall I wasting in despair," and descends from the family of his name so well-known in Hampshire, and particularly in this locality from Tudor times. The history of Nursling Priors, after the suppression of the religious houses, is chiefly concerned with the affairs of its lay lords. Of these John Mill, who so early as 1527 acquired a manor in the vicinity, obtained a grant of this manor from the King in 1545. He was a scion of the old Sussex family of Mill of Greatham (Pulborough), and is described as "Merchant of Southampton" in his will, dated December 1550, when he left his capital messuage in the parish of St. John in that town to Alice, his wife, and gave his manor of Nursling to his eldest son, George. Among his numerous possessions then cited were "the dissolved Abbey of Quarr in the Isle of Wight, and the manors of Millbrook, Langley, and Bewley," which last he bestowed upon his youngest son, John Mill, to whom he left the guardianship of the two daughters and co-heirs of Sir Roger Lewkenor, one of whom, John Mill, jun., married. The latter lived in the parish of Eling, on an ancient manor known as "Newtonbury," whose old manor house (pulled down in 1820) was found to have beneath its foundations numerous Roman remains and coins. This manor, which still belongs to the Mill family, is held under an ancient grant from the Crown by the presentation of two greyhounds to the Sovereign on his visiting the New Forest. The custom was last observed in 1787, when Sir Charles (ninth baronet) presented a pair of dogs to King George III. at Lyndhurst. George Mill, who succeeded to Nursling (1550), was also a merchant of Southampton and Sheriff of Hants (1562). He died sine prole on February 18, 1567, and by his will left to "Robert Croxford, my servant at Nutshalling, all my new weir, next the corn mill, newly erected on the ground between the two water courses, now called Rack Close . . . he giving to my wife yearly part of such fish as the plenty of the times shall show." To his wife, George Mill left all his "lands in the Isle of Wight, with Hasley House, the demynes at Nursling, and the Mansion House in Southampton." Mrs. George Mill, who was a well-known figure in this county in her day, was granddaughter and heir of Sir John Burton, of Kingsley (Yorks), and reigned as a very great lady at Hasley House until her death at the age of eighty in the year 1603.

The manor of Southwells, in Nursling, is said to have been given to the Dean and Chapter of Windsor by King Edward III., and was only sold by that body in recent times. Always let on very long leases, there was erected thereon about 1580 the present Elizabethan mansion called "Grove Place," which must in no wise be confused with an old house of the same name (pulled down in 1614), but whose identity is of extreme interest. It is described in a Chancery proceeding of 1561 as "A capital messuage called the Old Grove Farm at Nursling with a garden and six acres of ground." It was in all probability the same as "The Grove," leased by John Greenfield, gentleman, who dated his will (in London) on June 8, 1448, when he left "To Ingram Huet, farmer, at Southwells, my furred gown, and to John Huet, my farmer at the Grove, my black gown." In the archives of the Dean and Chapter of Windsor is preserved a document, dated 1560, where it is stated, in Latin, that Thomas Mill held one tenement in the parish of Nursling called Grove Place. And it should be noted that this house was standing in 1580, when the present mansion was erected, and so continued to stand until after the death (1613) of Sir Richard Mill, Kt., its last lessee. In view of this evidence it has been suggested that Thomas Mill was in possession of the "Old Grove Place" when his brother, George Mill, in 1557, made "a settlement upon him of Nursling Priors in fee tail, on the occasion of his marriage with Alice, daughter of Robert Coker, of Dorset." Thomas Mill was Recorder of Southampton, M.P. for the borough in the first year of Queen Mary, Sheriff for the county in 1559, and Steward of the New Forest, and died in 1560, leaving, with several daughters, an only son, who succeeded him at Old Grove Place. By the kindness of Miss Barton, of Nursling, we have been permitted to examine her father's manuscripts, together with his sketch of Old Grove Place, and its description, together with that of the "pond in front of the house, 150 feet long." In one of these notes it is also conclusively proved that James Pagett (builder

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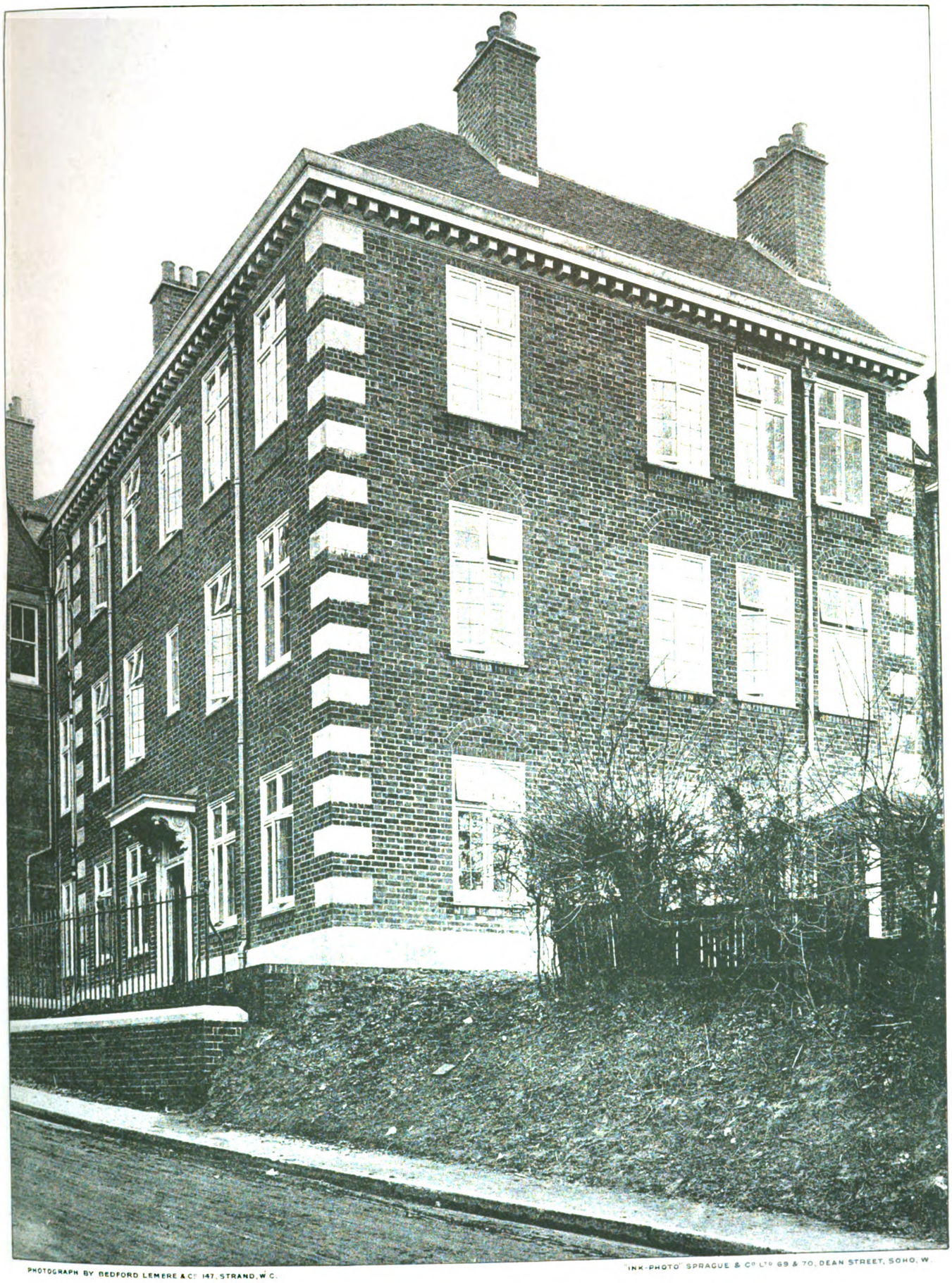
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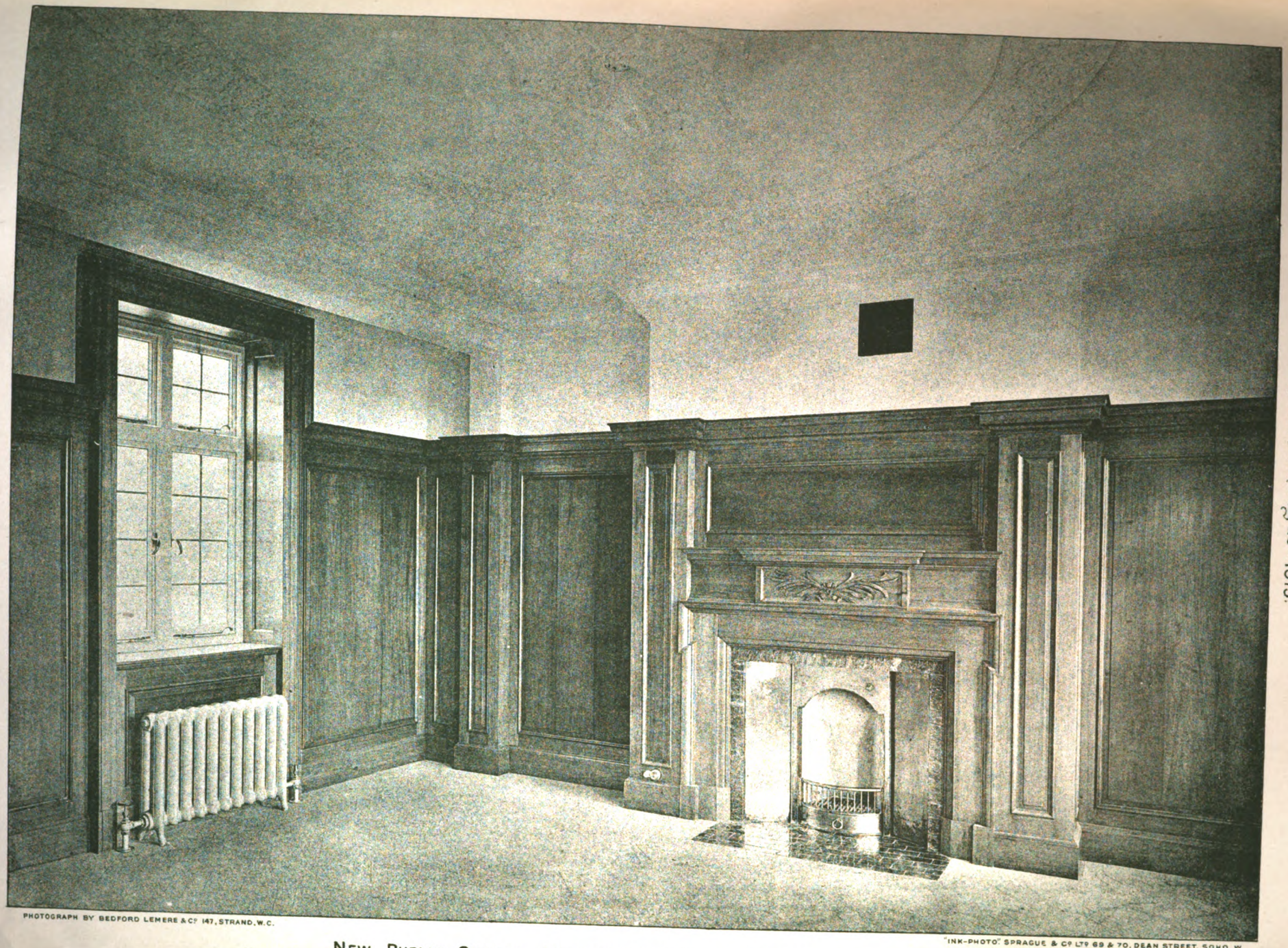
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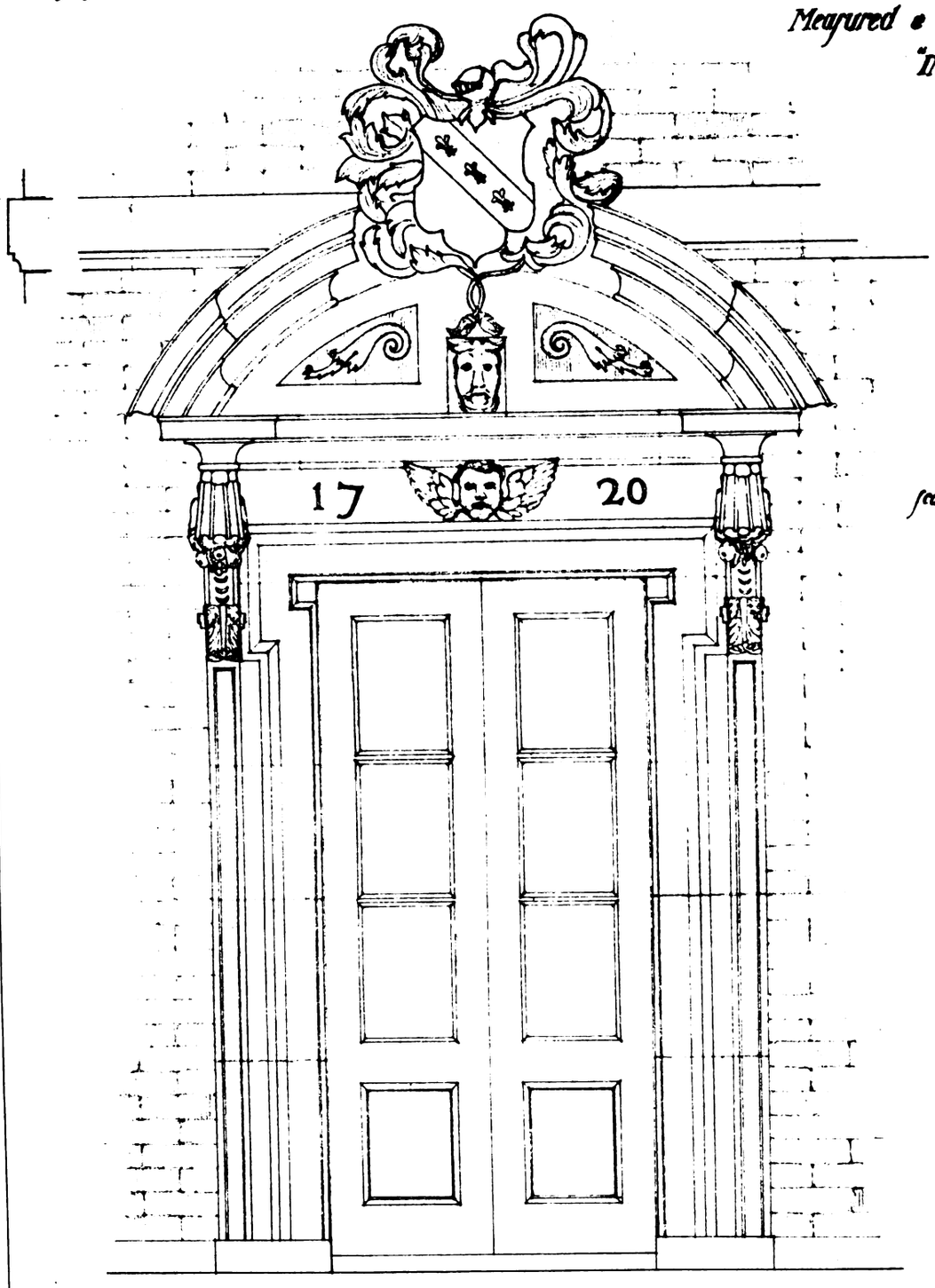
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GARDEN DOORWAY

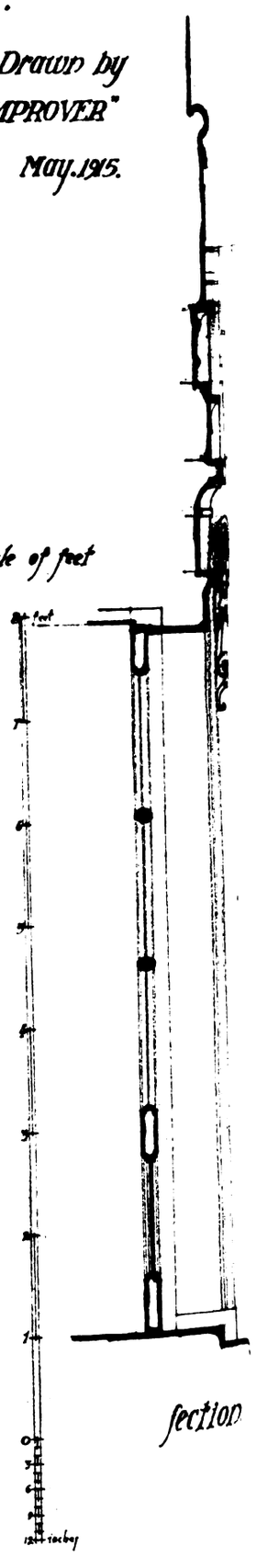
Jesmond Manor House. Newcastle-upon-Tyne.

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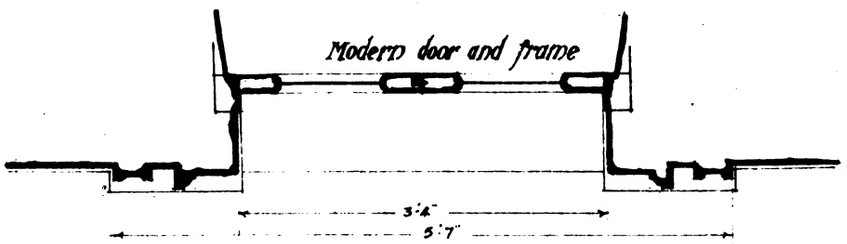
May. 1915.



Elevation



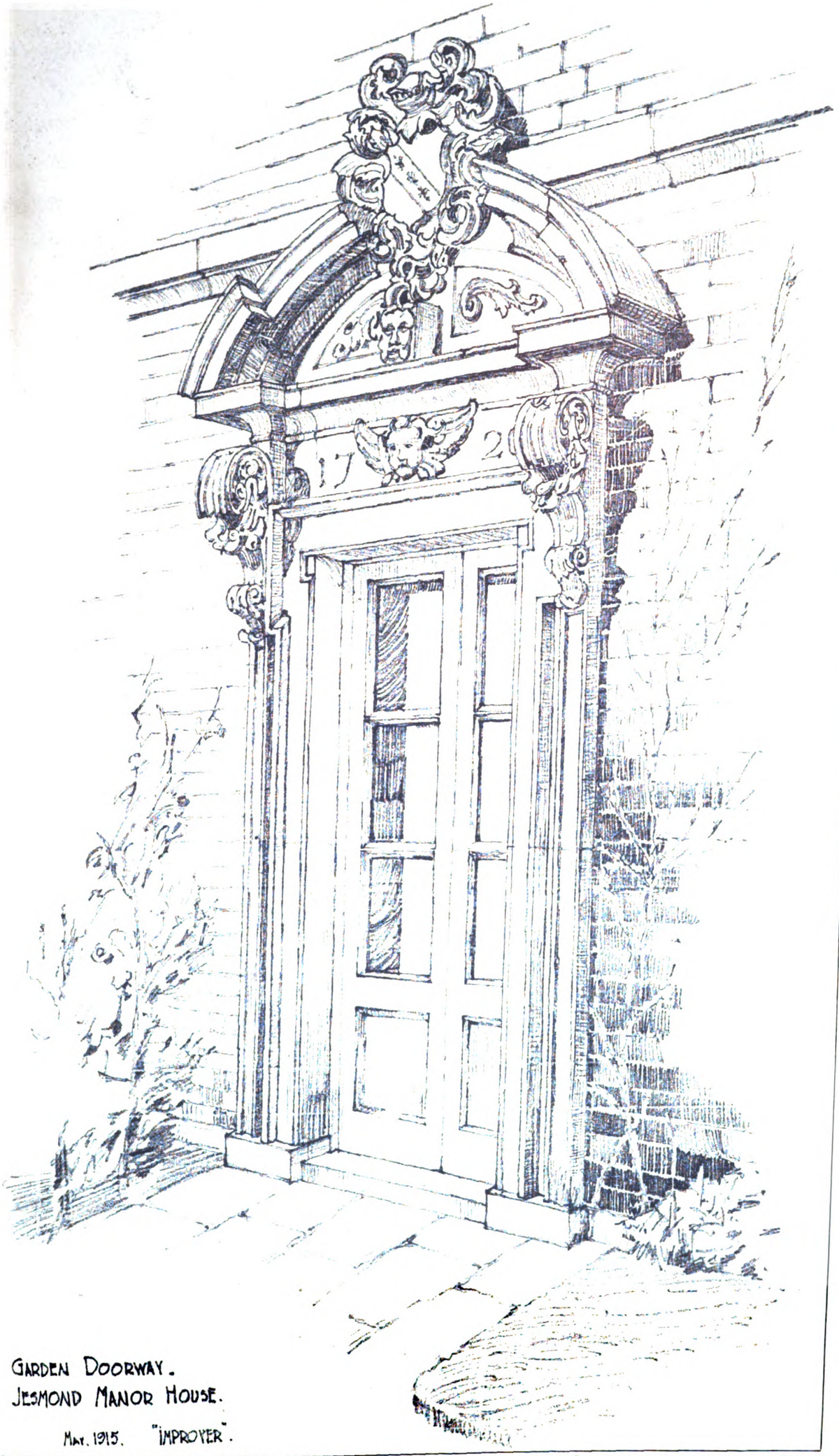
Section



Plan

FROM DRAWING BY MR. GEO. H. GRAY, WINNER OF

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GARDEN DOORWAY.
JESMOND MANOR HOUSE.

MAY. 1915. "IMPROVER".

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of the present Grove Place, who married Bridgett, sister of George, Thomas, and John Mill) commenced his connection with Nursling about the year 1557, and after the death in October 1556 of John Mill, of Newtonbury. The latter appointed James Pagett and Bridgett, his wife, as joint guardians of his only son, Lewkenor Mill, and gave them the use of his house at Newtonbury until his son should come of age. "And there," adds Mr. Barton, "I believe Pagett to have resided until he built the present Grove Place on the manor of Southwells, of which latter he had a lease in 1561-2 of eighty-one years." The story of this James Pagett (whose name appears in the Southwell Court Rolls from 1570 to 1604), together with his pedigree, will be found in Mr. Barton's MSS., and also in Mr. B. W. Greenfield's "Notes on Grove Place," printed by the Hampshire Field Club in 1894. But the concern of these notes is chiefly with the lease of Old Grove Place, which devolved upon Richard Mill (only son and heir of Thomas, who was baptized at St. Michael's Southampton, on February 8, 1556-7). In the Record Office are preserved some notes on this Richard Mill, who "was very sickly in his youth," so much so that his uncle, "George Mill, was often minded to settle the lands after his death upon his younger brother, John Mill, in fee tail, so as to continue the same in his own name, but refrained on account of his former settlement." On the death of George Mill, in 1567, the estate passed to Richard, who, some time after, married Mary, sister of Sir John Savage. Richard used his sisters very kindly, oftentimes affirming that the possibility of his lands would be preferment for them in marriage, he having no issue. And although his wife, Mary, oftentimes entreated him to disinherit his sisters, he steadily refused, saying that the lands should descend to them in accordance with the wish of his uncle. . . . Shortly afterwards he grew weak, both in mind and body, by reason of a dread palsy which he had, and while in this state his wife, Mary, and her nephew, Sir Thomas Savage, "who waited upon him and ministered physsicke to him during his long illness," seemingly gained ascendancy over him, so much so that he finally conveyed the greater part of his estates to Mary about the year 1609, and by his will left only £300 to his sisters. But nevertheless, previous to her marriage with Thomas Wroughton in 1616, she executed a deed granting the reversion of Sir Richard Mill's property to her nephew. The latter, on the death of his aunt Mary, in 1623, sold the Manor of Nursling Prior to Sir Thomas Cornwallys in December 1624, from whom it eventually passed to the Knollys, in whose possession it remained until the year 1751, when, on the extinction of the male line of that family, it passed to Sir Richard Mill, fifth baronet (born 1690, died 1760), who was married at Nursling on March 12, 1712, to Margaret, daughter of Robert Knollys. From this it will be seen that from 1751 until the present time the Manor of Nursling, together with the greater part of the Mill estates, has remained in that family, now represented by Mrs. Barker-Mill, of Newtonbury, Langley, and Mottisfont Abbey. On entering the church of Nursling the visitor is struck with the fine alabaster tomb erected to Sir Richard Mill, Kt., by the "grasping" Mary, whose effigy in ruff and wimple lies beside his, in full armour. This tomb, which writers of the past have described as being in a ruinous condition, was cleaned and restored in 1890 at the expense of the late Mr. Barton, of Nursling. Sir Richard Mill, who was Sheriff for the county of Hampshire in 1593, M.P. in 1597, and is said to have been a distinguished soldier, died on October 20, 1613, and directed in his will dated May 1610 that his "trusty servant, Andrew Munday," should be its overseer, using the same term in his bequest to him of five pounds and a ring. It is not clear who these Mundays, of Nursling, were, for Mr. Wilks, the historian, who was well acquainted with the village, puts a query as to the position of "the manorial residence of Andrew Munday," which he judged to be "near the present Nursling farm." In a quaint Latin inscription to the memory of an Andrew Munday, who died on the third day after the festival of St. Andrew in 1632, it is recorded that this "most excellent of men left his property to his relations and his soul to God." . . . Possibly he was father of the "Catherine, daughter and heir of Andrew Munday," who was married at Eling in 1628 to "Thomas Mill, of Nursling." The latter was second son of Sir John Mill, of Newtonbury (first baronet). He served in the Royalist Army as a lieutenant-colonel, and was at Cheriton fight with Colonel Henry Sandys in 1644. During the Civil War the Mills were "persecuted" for their "loyalty to the King," the Parliament heavily fining the first baronet, who died of a broken heart in May 1648, "bowed down" by the loss of his eldest son in the Oxford fight of 1644. The latter, who was created a knight-banneret by King Charles I., did his courting at Nursling, whence he married from the Manor of Southwells, Philadelphia, daughter of Sir Henry Knollys, then living at the present Grove Place. The Knollys were of the old faith and the Mills of the new, and there is much in the will of old Sir John Mill as to his desires for the "Protestant" upbringing of his little grandson, away from the influence of "his mother, the Lady Philadelphia," who, together with her mother, Lady Catherine Knollys, was fined for recusancy. It is interesting to note that the Rector of Nursling during those troubled times was the Rev. Edmund White, who served this church from 1625 to 1646, and was here married on April 12, 1630, to Charlotte Maxe. He is supposed to have been related to Dorothy White, who was married at Wellow in February 1669 to that Rev. Edmund Clarke who figures in the will of the Rev. George Reynolds, vicar of Wellow from 1644 to 1681, and who bequeathed to his cousin, Edmund Clarke, a black gelding. The latter, who was "curate of Nursling for forty years (1676-1718), died suddenly in the reading desk as he was looking out the lessons on the afternoon of St. Matthew's Day, September 21, 1718. There are several notes connected with the former Rectors of Nursling (of whom our present kind host is the twenty-seventh representative) which might be referred to did time permit—notably, the Rev. Robert Cramer, who erected the present rectory house, and the Rev. Samuel Wilks (instituted 1847, died 1872, in the eighty-fifth year of his age), who was a near relative of the Rev. Theodore Wilks, one of the editors of Woodward's "History of Hampshire," so often consulted for these notes. The latter, who was often at Nursling, and apparently loved it well, says that the lines of "the mummers who still go round at Christmas differed somewhat from those of Chilworth, and that here the cattle punctiliously kneel at midnight on old Christmas Eve, regardless of the fact that times have changed."

COLONIAL DUTCH ARCHITECTURE.*

By MR. F. K. KENDALL, F.R.I.B.A.

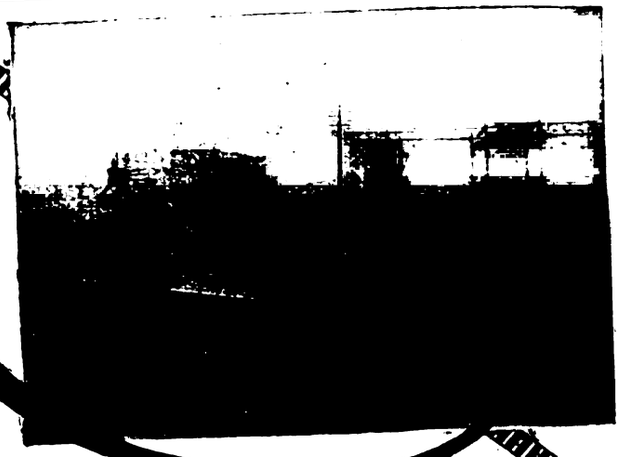
THE type of building commonly known as Cape Dutch would not, of course, rank very high among the great styles of architecture in older countries. These styles, as we know them, were all produced by highly active nations at about the zenith of their career. The people had accumulated great wealth, their habits demanded fine buildings, their energy had brought them to the highest civilisation of their time; and it must be remembered that no architecture—any more than any other great art—was a mere caprice on the part of one or two designers, but was the expression of national character slowly evolved and moulded by the law of circumstance. The habits of the people determined the sorts of buildings required; the climate went very far to dictate the general forms and features of the buildings; the available materials defined the practical limitations of their ideas. It was, then, by the process of improving upon the satisfactory forms, the weeding out the superfluous, that a so-called style of building became evolved; and, as I need hardly say, this required the best skill, both as to design and craftsmanship, that the respective ages could offer. Thus a style in architecture may be described as a concrete expression of national character.

With the early settlers in South Africa came the best western civilisation of their day, as, in addition to the Dutch, there were French and German settlers of good family, who had a refining influence upon the community at large. Had they been more numerous, more wealthy, and less handicapped by the many adversities of a wild and unknown country, these settlers would, no doubt, have handed down to us monuments of greater magnificence than they have done; but you will see at once how the new limitations demanded many changes from the traditions which the people brought with them, and so in a measure produced a new style. Whereas good brick and stone, tiles, slates, and highly skilled artificers were within easy disposal in Europe, these first necessaries were denied to the settlers at the Cape; yet, with the doggedness and determination of their nature, they set out to do the best that was possible within the circumstances.

* A Lecture delivered at Grahamstown (S.A.) before the local Athenæum.

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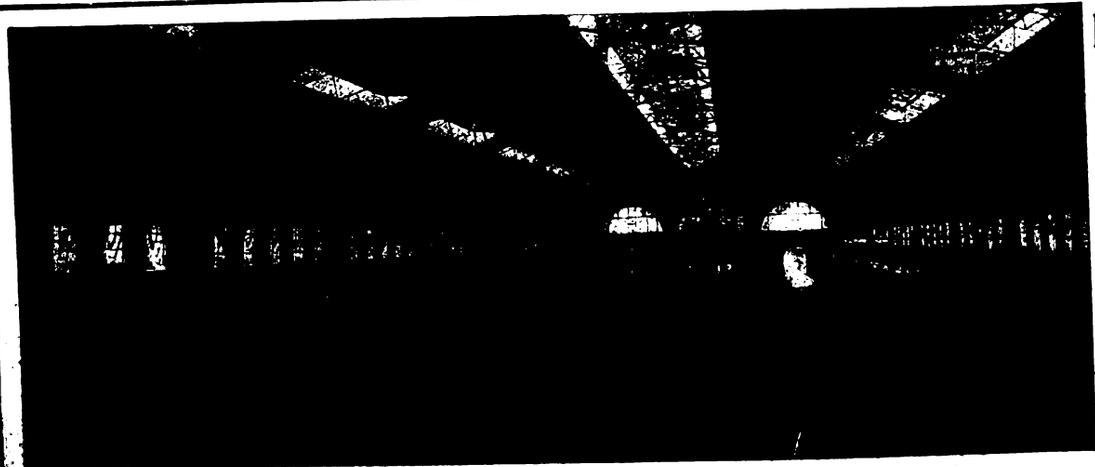
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Stone, although the most noble of building materials, was practically impossible by reason of the great labour of quarrying and transport, and the want of skilled masons. A limited number of bricks were imported from Holland, but those were so rare that they had to be used sparingly. Those made locally were much too soft to withstand the weather, unless protected. It was almost impossible to get good mortar, so that dagga generally had to be substituted as a binding material. This was found to be successful when kept dry—but, as it has not the property of "setting" and becoming permanently hard like proper lime mortar, it also had to be screened from the weather. Thus it became necessary to cover the walls with plaster, and this treatment has remained as one of the characteristics of the local style, as it was in all respects a sound and simple solution of the problem. True, the plaster face lacked the warm and varied tones of proper brickwork—so suitable to a cold climate with grey skies—but it provided instead a cool, clean looking substitute, even more to be desired in a sunny climate. The difficulties of importing tiles or slates for the roofs were far too great, and therefore local material had to be substituted; this resolved itself into the use of reeds, which formed a very picturesque thatch. This again was suitable, being easily procured, giving good protection from sun and rain—and forming a pleasant contrast to the whitewashed walls of the houses. As plenty of ground space was available, it was easier to extend the buildings laterally—than vertically, as in the Netherlands—and a spread out plan was consequently followed, and therefore almost all the old houses outside the town are only one storey in height.

Nearly all the old country homesteads are built in the shape of an "H," a very simple device which lent itself well to the circumstances, as it allowed each room to be well lighted and roofed in a single span. The house then consisted of two parallel blocks, one some 20 feet or so behind the other with a central connecting line at right angles. This latter portion was used as the main hall, extending from front to back, being lighted by door and windows at each end, giving on to the front and back stoops. By this arrangement it was possible to get some additional windows into the middle of the hall from the two little side courtyards which were formed between the front and back blocks. Another plan—more common in the Cape Peninsula—was that somewhat in the shape of the letter "U," but with square corners. Here again the hall extended along the centre from side to side—the two side wings running at right angles to, and adjoining it. In this case the problem of roofing the building was not quite so simple, as it was practically necessary to form a break in the regular system of single pitched roofs and cover the back portion of the centre block with a flat. The ground plan of certain other houses is in the form of the letter "T"—but these are houses of less significant size. It is highly probable that, had the owners been able to afford to complete their building schemes, these would have been extended into the familiar "H" form in the end, as it is pretty well conceded that the houses had to grow in instalments in proportion to the families.

The stoep became a necessary adjunct—often at the back as well as at the front of the house—and this was sometimes covered by a pergola supported upon columns or piers, so that it was possible to grow vines or other creepers over the stoep. This was a delightful natural arrangement for providing shade in the summer and allowing the sun's rays to penetrate to the walls and through the windows in the winter, when its warmth was welcome. The indigenous woods were commonly used for the constructional beams, such as ceiling joists, &c., and were only roughly wrought. For the more important joinery it was usual to employ teak, which was imported from the East Indies. Probably there were no carpenters among the settlers, so that ships' carpenters had to be secured when they were available. No doubt the doors, shutters, &c., are from their hands—whereas the rougher work might have been done by unskilled workmen. The danger from fire owing to the thatched roofs was soon realised, as we find it common to have a layer of brandsolder above the ceiling of the ordinary rooms, to form a protection to the rooms of the house should the thatch take fire. The ample space enclosed by the high pitched roofs then became available for storage purposes, and this loft was approached by a step ladder from the outside, leading to a door in one of the gables. Where houses stood close together the danger of fire spreading was naturally increased, and this was doubtless the reason why in town houses the flat stone roofs soon seem to have replaced the early thatched ones. The Cape authorities, when communicating with "The Seventeen" at Middleburg in 1737 mentioned that "some of the houses were old, low, and in disrepair, and that people were encouraged to build them better, higher, and under flat roofs to prevent them being totally ruined by fire."

The town houses thus partook of a different form—usually being two storeys in height, as ground was more valuable than in the country—and often with an observatory raised above the level of the flat roof. This was doubtless for the purpose of sighting the arrival of new ships from home or from the East, as they, of course, played a very important part in the life of the town.

The windows were often shuttered, and the shutters were usually solid and not louvred, having the centre filled with a good strong panel, often very attractively moulded. As the shutters were solid and fitted only to the bottom sash, it may be concluded that they were used only for protection from thieves or animals, and not for the sake of shade. The many other little domestic touches which were so highly appreciated among the Dutch people of the time were much in evidence in these early houses, such as the delightful wrought iron work to the shutters in the form of catches, bolts, hinges, &c., or the brass handles, escutcheons, &c., &c., to the doors. The idea of the screen which commonly divided the dining hall from the vestibule was a Batavian importation, and soon became a regular feature. Furniture was sometimes imported—but was often made locally—elaborate pieces often having inlays of ebony or ivory from India. No doubt from these brief remarks you will understand some of the ways in which the limitations of the new country dictated the lines which could best be followed in building houses. Necessity is the mother of invention, and the two together have produced some very pretty solutions to the problems of our daily life. The mechanical work of the buildings was chiefly done by slaves—many of whom were imported from Madagascar, Ceylon, and the East Indies; but it is regrettable that so little is known of the individuals who designed and supervised the handwork of these old buildings. It is believed that a certain locksmith was detained on his way to Batavia by Van der Stel to do the metalwork for Groot Constantia—much to the indignation of "The Seventeen" in Amsterdam.

Van Aken originally designed the Paarl church in 1717—but his design was never carried out. Vauban designed the Castle in Cape Town. Certain bits of later work were by Thibault, Anton Anreith, and Schutte.

(1) Anton Anreith arrived in Cape Town from Germany in 1777 and for fifteen years had a workshop in the Castle, where he carried out his carving and modelling work. He died in 1822 at the age of sixty-eight.

(2) Thibault was a Frenchman who came to Cape Town in 1871—as an officer of Engineers. In 1811 he was appointed Government land surveyor, and was responsible for a number of designs for town and country houses. He died in 1815.

(3) Hermann Schutte, a German architect, after working some time for the East India Company, set up on his own account in 1792. He, Thibault and Anreith frequently co-operated in their work, and, apart from our limited knowledge of these men, there is little information to connect individuals with the old work.

I only wish to add a few words in conclusion. An honourable history is one of the greatest assets that a country can have, creating, as it does, a high standard of life and formulating ambitions and aspirations for future development. A nation's history is written more faithfully and impressively in its architecture than in any book. It is therefore incumbent upon each generation to hand on to posterity these monuments with which fortune has endowed it. Restoration from time to time is, of course, necessary, as also are additions; but these facts do not justify some of the so-called "modern improvements" which are too often met with. If alterations must be made to old houses it is easy to arrange for them to preserve the spirit of the old work, even though they are not replicas of other parts of the building. It is the object of the National Society to do what it can to inculcate a widespread appreciation of the historic and beautiful, so that the future generations of this country may take and hand on unimpaired the noble and interesting work of their ancestors.

MR. H. IRVING GRAHAM, architect, Harrington, has prepared plans for the proposed West Cumberland Hospital which is to be erected at High Moor, in the parish of Egremont, at a cost of about £3,500.

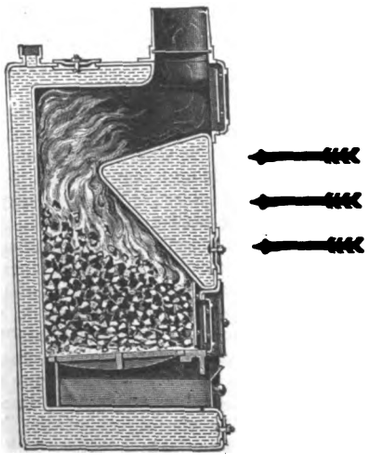
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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

London County Council and District Surveyors.

SIR,—I observe in your report of the 16th inst. of the proceedings of the London County Council on the previous Tuesday that you mention the report of the Building Act Committee "that they felt it desirable in the public interest" that I, as well as another district surveyor, should be relieved of my duties, and that the Council agreed to dispense with my services accordingly.

All that the Council did, as I am credibly informed, was that the Committee's report was printed, and the Committee's recommendation passed *sub silentio*, without being read, but only mentioned by number among other numerous recommendations of various committees occupying forty pages of the Agenda.

The power of the Building Act Committee to make this recommendation, which appears to be in contravention of the Council's Standing Orders, as well as the powers of the Council to dismiss district surveyors without good reason, notwithstanding the provisions of Section 142 of the London Building Act, 1894, which provides for the appointment of deputies in case of illness or infirmity, is the subject of an action now before the Courts of Law, in the case of another district surveyor; and I had already received and agreed to the postponement of any question in my case, I having with the Council's consent appointed my deputy.

The Committee have, however, now recommended, as it would seem, that my duties shall terminate at the end of November. You will see, therefore, that at present there is no vacancy.—Yours, &c.,

FREDERICK WALLEN, F.R.I.B.A.,
District Surveyor for St. Pancras South.

96 Gower Street, W.C.: July 20, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—House, Grimsdell's Lane, for Mr. S. Norman.

House, Grimsdell's Lane, for Mr. A. Woodley.

Holmer Green.—House, for Mr. S. W. Nash.

Penn.—Stables and coach-house, The Village, for Mr. F. Perfect.

DEVON.

Brixham.—Proposed isolation hospital.

DURHAM.

Burnopfield.—House, Crookgate, for the Co-operative Society, Ltd. Mr. J. J. Eltringham, architect, Derwent Street, Blackhill.

Sedgefield.—437 houses behind Chilton Lane and Chapel Row, for the Carlton Iron Company.

Willington.—Two houses, Lydia Street: alterations, for Mr. J. H. Armory.

ESSEX.

Black Notley.—Sanatorium: additions (£4,500). Mr. G. T. Forrest, architect, Duke Street, Chelmsford.

HAMPSHIRE.

Basingstoke.—All Saints' Church (£7,000).

Radmore.—Church. Messrs. J. & P. Coleridge, architects, 14 North Audley Street, London.

KENT.

Bromley.—Business premises, East Street: additions, for the Co-operative Society. Mr. F. G. Crickett, architect.

Faversham.—Offices, Belvedere Road: extensions, for Messrs. T. & T. G. Gillett. Mr. E. Pover, architect, 54 and 55 Park Road.

Gillingham.—House, Heath Lane, Wigmore. Mr. G. E. Bond, J.P., architect, 384 High Street, Rochester.

Gravesend.—Infants' Council School, Cecil Road: proposed additional 100 places.

LANCASHIRE.

Bacup.—Beech Mill: additions for Messrs. Hoyle & Sons.

Workshop, Burnley Road, for Messrs. Cowgill & Son.

Barrow-in-Furness.—Bungalow, Parkhouse Road, for Mr. J. Carter.

Two houses, West Avenue, for Messrs. Marsh & Atkinson.

Two houses, Hawcoat Lane, for Messrs. Pye Brothers.

Six houses, Romney Road. Mr. R. T. Dockeray, builder, Manchester Street.

Four houses, Roose Road, for Mr. A. Ingham.

Six houses, Roose Road, for Mr. R. Richardson.

Two houses, Roose Road. Messrs. J. & T. Walker, builders, Storey Square.

Six houses, Oxford Street. Messrs. Joe Neal & Co., builders.

Bolton.—Laundry, "Rosslyn," Green Lanes, Great Lever, for Mr. C. Ainsworth.

Woodside Mills: alterations, for Messrs. J. Harwood & Son.

Burnley.—Proposed Auction Mart, for the Burnley Tenant Farmers' Association.

Croston.—House, Drinkhouse Lane, for Mr. R. Almond.

Failsworth.—Proposed Technical School.

Great Harwood.—Proposed Mercer Hall (£14,400).

Haydock.—W.M. Church, Church Road.

Southport.—Hospital. Messrs. Bolshaw, Packer, Peach & Prescott, architects.

LEICESTERSHIRE.

Snibstone.—St. Faith's Church, Highfield Street.

MONMOUTHSHIRE.

Rhymney and Tredegar.—Joint Isolation Hospital.

NORTHAMPTONSHIRE.

Burton Latimer.—Factory: additions, for Messrs. Buckley Bros.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Proposed church, Walker.

SOMERSET.

Wincanton.—Wesleyan Church (£2,000).

STAFFORDSHIRE.

Barr Beacon (near).—Tuberculosis sanatorium and hospital for Walsall and West Bromwich.

Brierley Hill.—Theatre, High Street, for Mr. J. F. Goodall.

West Bromwich.—Proposed twelve working-class houses, Hardware Street.

SURREY.

Guildford.—Forty-two Council cottages.

Pyrford.—Home for crippled boys, for the Waifs and Strays Society.

Wimbledon.—Secondary school.

SUSSEX.

Hastings.—The "Clarence" Hotel, St. Leonards: alterations, for Mr. H. Glenister.

Lancing.—Parish hall (£1,250).

WARWICKSHIRE.

Bedworth.—Six houses and a shop, Bulkington Lane, for Mr. J. D. Johnson.

Birmingham.—Picture house, Corporation Street. Mr. H. Bradley, architect, 10A Temple Row.

NOTE.—The address of Mr. Hobbiss, architect (in previous issue), should have read 33 Newhall Street.

Exhall.—Twelve houses, Windmill Street, for Messrs. J. Magson & Sons.

WILTSHIRE.

Swindon.—Factory, Sheppard Street: alterations, for Messrs. Compton Bros. Mr. R. J. Beswick, architect, 10 Victoria Road.

YORKSHIRE.

Barnsley.—St. Paul's Mission Church Club, Old Town: additions. Messrs. R. & W. Dixon, architects, 5 Eastgate.

Bentley-with-Arksey.—Public elementary school (£520).

Brampton Bierley.—Four villas, for the Cortonwood Collieries Co., Ltd.

Huddersfield.—Military hospital for 500 patients, Royds Wood (£15,000).

Sheffield.—W.M. Church, Woodseats (£4,100).

Unstone.—Church for 280 sittings, Crow Lane (£3,500).

SCOTLAND.

Beith.—Morishill House: alterations, for Messrs. Murdoch & Loudon (of Ayr).

Clarkston.—Four houses, Carrolside Avenue, for Messrs. A. Mickel & Co. (of Glasgow).

Dalry.—House, Ryeside: addition, for Mr. D. Campbell.

Dreghorn.—Workmen's houses, Bankhead, for Messrs. J. & R. Howie, Ltd.

Dunfermline.—Board school, Rosyth.

IRELAND.

Dundalk.—County Council offices. Messrs. O'Callaghan & Webb, FF.R.I.A.I., architects, 31 South Frederick Street, Dublin.

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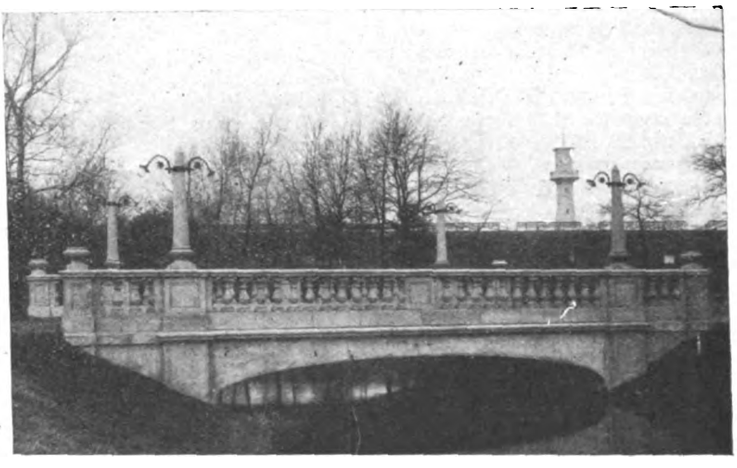
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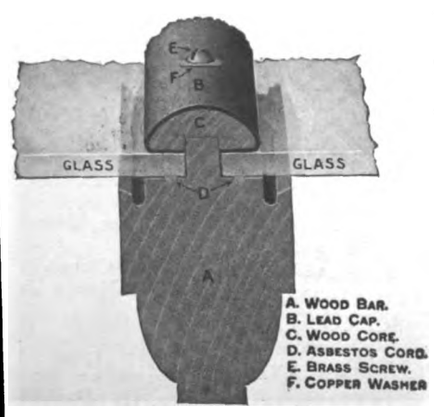
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THE ARCHITECT

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NATIONAL COMPETITION OF ART SCHOOLS.

In spite of the war, "Art as usual" expresses in more senses than one the character of the successful work in the annual competition for prizes amongst the Art Schools of England, for which 1,886 rewards, ranging from gold medals to "commended," have been awarded. There is the usual catholicity of objective, the usual low standard of achievement in the majority of the work, the usual evidence of insufficient training before the attempt of vaulting ambition, the usual preponderance of the amateur over the professional. The Art Schools of England would still seem, judging from the work of the more successful students, to fail in producing in any large number those who are capable of making a living by the practice of Art, except as teachers.

Naturally, we turn first to the section of Architectural Designs and Measured Architectural Drawings, as to which the criticism of the examiners is caustic, but not a whit too much so. They remark, first, that the works submitted are distinctly below the average level of recent years. This latter has, we have said before, been low enough in all conscience. The examiners note that drawings continue to be sent in to the National Competition showing such ignorance of architectural design as to imply the absence of any intelligent control on the part of the master, and they wish to point out that it is mischievous for students to attempt architectural design unless there is adequate provision for architectural teaching by trained and competent men, and that, in their opinion, in the absence of such provision, architecture should be definitely omitted from the school curriculum. With this drastic recommendation we thoroughly agree. In the first place, it is abundantly clear that the average Art Master is incapable of training students to design architecture. In the second place, he has so little appreciation of architectural design that he permits utterly incapable productions to be submitted for the National Competition, and thereby advertises his own incompetency. Thirdly, grievous harm is done to students who are permitted to suppose that they are learning to design architecture. The examiners have been sufficiently generous in awarding a bronze medal to Harold Beard, a book-prize to George A. Collin, and some commendations. There are now so many excellent architectural schools in England that it would be no great loss to architecture if the general Art Schools removed its study from their programme.

The prizes awarded for England comprise 7 gold medals, 54 silver medals, 156 bronze medals, 321 book prizes, and 1,348 commendations. Students from Wales obtain 1 bronze medal, 2 book prizes, and 9 commendations. Scotland receives 1 bronze medal, 1 book prize, and 2 commendations. Art Schools in Ireland take 4 silver medals, 6 bronze medals, 10 book prizes, and 52 commendations; whilst the schools in New Zealand obtain between them 18 commendations.

Of the gold medals, No. 1 on the list is awarded to George W. Bedford, of the Leeds, Vernon Street, School of Art, for a modelled figure from the nude of a runner about to start, which the examiners characterise as "vigorously drawn and broadly modelled." A bronze medal has also been awarded to the same student for a sincerely modelled female figure. Dorothy Ballantine, of the Islington L.C.C. Camden School of Art, obtains a gold medal for her jewellery designs, which consist of drawings and executed work for (1) a pendant and chain in gold and silver, the pendant having an enamel panel with a border of cloisonné enamel and peridotes; (2) a brooch in silver and cloisonné enamel around a black opal; (3) a clasp in silver and gold, set with aquamarines. The L.C.C. Camden School seems to specialise in jewellery, as other students take a silver medal, a book prize, and four commendations in the same division.

Kensington School of Art Wood-carving Art Class rightly maintains its reputation by submitting work for which one of its students, Alice L. Hitchcock, obtains a gold medal for a panel in low relief, showing much taste and refinement in the treatment of the human figure. The same student, from the Wandsworth L.C.C. Clapham School of Art, is awarded a silver medal for a set of designs for the decoration of porcelain plates to be executed in various methods, displaying taste and refinement, both in colour and treatment, and considerable knowledge of the requirements of design for this class of manufacture. She also credits the same school with a silver medal for a shaded drawing of a figure from the antique, and the Westminster L.C.C. Technical Institute School of Art also with a silver medal for a modelled design for a silver dish. As a corollary of these awards it is hardly surprising that this lady receives the Princess of Wales' Scholarship of £25.

Another gold medal for wood-carving is won by David Evans, of the Manchester School of Art, for a carved oak frame for a roll of honour, which the examiners commend as the most distinguished work in this class. It is original and dignified in treatment, and appropriate to its purpose, boldly, if somewhat roughly, cut. While evincing a knowledge of traditional treatment it retains to a remarkable degree the executant's own personality.

The Polytechnic School of Art, St. Marylebone, continues to score in its speciality by the award once again of a gold medal to Gwen White for a design (executed) for a stained-wood dressing-case. The examiners describe this as an accomplished and complete work, which, however, is somewhat less satisfactory and less vivacious in colour than her work of last year, and state that this is in some degree due to the introduction of opaque pigment and to the quality of the surface varnish. We are not inclined to think that the departure from puristic use of transparent stain is a disadvantage to the production as a work of art, even though it may not be so strictly in accordance with the limitations of the class, and for our taste there is quite sufficient vivacity in the decoration of an object which is primarily for use and an adjunct to a dressing-table, and is not intended to be put in a glass case to serve simply as an object of admiration. The art-museum view of craftsmanship is detrimental to the public appreciation of art in daily life. Students of the Polytechnic school secure also for stained-wood work three silver medals, six bronze medals, four book prizes, and five commendations.

Nottingham School of Art enjoys the proud distinction of being the only school to carry off two gold medals. Designing for machine-made lace is appropriately a strong point at this school, and Darral P. Clarke obtains a gold medal for his design for a flounce in Chantilly lace. This is bold and good in general effect, not too fine in line, but refined in mass. Five silver medals are won by students of the Nottingham School for designs for machine-made lace in various modes—point d'Alençon,

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point de Malines, point de Venise, point de Bruxelles, point de rose, and sixteen point combinations. The second gold medal allotted to Nottingham is won by George R. Hoff for a modelled design for a plaster panel over the proscenium of an opera-house. The examiners remark that the architectural setting is commonplace in comparison with the sculpture, to which, also, it is not very well suited. This is putting the cart before the horse, which is evidently the method of the Art School in the conjunction of architecture and sculpture. The sculptor models a design and puts something which he thinks is architecture around it. The design for the proscenium is bad in proportion, a confused medley of architectural motifs of varied historical dates, the production of a man who does not understand architecture. Of the sculpture the examiners say that it possesses an exquisite sense of relief, and the rhythmic progression of the grouped figures is admirable, and with this we agree. The work is an admirable example of low relief sculpture, which would unite charmingly with some moods of architectural expression. From the Nottingham School comes also a model for a memorial panel, which in design is delicate and charming and admirably suited to its purpose; but, say the examiners, the drawing contains grave defects that greatly detract from its artistic value. But for these, the work might have received a higher award. Bronze medals and a book prize, but no commendations, are awarded to other students of the Nottingham School of Art for sculpture connected with architecture in point of position, but unfortunately lacking sympathetic comprehension of the relationship that should exist between a work of architecture and sculpture connected with it.

NOTES AND COMMENTS.

THE civic survey of Greater London has been begun in Conduit Street, under the scheme drawn up as a professional war relief measure and approved by the Government Committee.

Greater London, South Lancashire, and South Yorkshire are the three areas mentioned by the Government Committee in making a preliminary grant of £1,000 at the end of June, and work will begin as soon as possible in Manchester, Liverpool, Leeds, Sheffield, and other places in these areas.

Mr. H. V. Lanchester, F.R.I.B.A., in conjunction with his co-directors for the different areas, has just completed the general details of the survey programme. The maps and diagrams which are to record in the most accessible manner the entire life and interests of the communities will be grouped in seven sections, and some ingenuity has been necessary in drawing up the colours which are to show at a glance the physical, vital, density, recreative, industrial, traffic, and housing characteristics of the areas.

Some of the details just settled are:—

Section I.—Surface utilisation, one inch to the mile; sand dunes, fawn; moorland, purple; woodland, olive green; pasture, apple green; cultivated, yellow; marshland, sea green; manufacturing areas, red; residential, brown; rainfall, to a tone scale in blue grey. History of physical characteristics to be collated from old records.

Section II.—General death-rate, zymotic, pulmonary, and infant death-rates and birth-rate shown on a series of maps in tinted scarlet, orange, brown, purple, and blue respectively. Populous centres six inches to the mile.

Section III.—Existing density of population and chronology of density in red tints; periodic growth of density alternate black and white (zebra); height studies of population in grey tints.

Section IV.—Public parks, &c., dark green; private recreation areas, such as golf courses, racecourses, playing-fields, light green; public buildings for entertainment, red; libraries, brown; baths, blue; private places of entertainment, pink. Annual number of visits; dates of opening; notes of waste land used for recreation.

Section V.—Shops area, red; offices, salmon; warehouses, brown; classified factories, dark grey; railway and transport areas, light grey; residential, shades of yellow.

Section VI.—Census of the traffic on main routes, railway passenger and goods traffic, in diagrams purple, crimson, and blue.

Section VII.—Schedules showing relative area of streets, open spaces, and actual building. Typical plans of housing in more densely populated areas.

The hon. directors for the first three areas are:—Greater London, Mr. A. R. Jemmett, F.R.I.B.A.; South Lancashire, Professor Abercrombie, A.R.I.B.A., Liverpool University; South Yorkshire, Mr. H. S. Chorley, F.R.I.B.A., Leeds.

The annual meeting of the British Association for the Advancement of Science, which is to be held in Manchester in September next, is in the scientific nature of the present war one of the few such activities that it would be unwise to defer till peace arrives. We understand that three days will be devoted to the consideration of three subjects of great present importance: (1) Industrial inroads; (2) the outlets for labour after the war; and (3) the effects of the war on credit, currency, and finance.

Social functions will be at a discount. It has been decided to have no evening entertainments except the lectures to working men and women, and these will be provided in even larger numbers than before. There are three to be delivered in Manchester, two in Salford, two in Oldham, one in Rochdale, and one in Bolton. Professor Vaughan Cornish will lecture on "The Strategic Geography of the War"; Mr. Stephen Paget on "Lines of Advance in Medicine and Surgery"; Mr. Walter Rosenhain on "The Making of a Big Gun"; Professor F. W. Gamble on "Evolution and War"; Professor Stirling on "Defects and Curiosities of Sight"; Mr. A. R. Hinks on "The Daily Uses of Astronomy"; Professor B. Moore on "Health Conditions in the Modern Workshop"; Professor H. H. Turner on "Some Lessons from Astronomy"; and the Rev. A. L. Cortie on "The Formation of Sun and Stars."

There will be a visit to the School of Technology, in the evening instead of the day time, in order to inspect the building and equipment, and witness a demonstration of special interest connected with the war. The Lord Mayor has kindly offered hospitality on that occasion, and while there will be no band nor anything to suggest a recreative or festive gathering, members of the Association will find this the only opportunity of meeting each other in one building throughout the whole week of meetings. The committee dealing with excursions has decided to have none of the far-off day excursions characteristic of meetings of the Association, but they have decided to ask for invitations to visit certain institutions of special interest, and have been happy to receive invitations to visit the Manchester Docks and Ship Canal and other institutions and establishments in this district.

In the Upper House of Convocation of York, which met at St. William's College, York, on July 22, the President presented the report of the Committee on the care of ancient churches and faculties. The chief provisions were to give a locus standi to the Bishop in the Consistory Court on applications for faculties, and to bodies of historical and archæological experts, who should advise the Chancellor. They also recommend that additional steps should be taken to enforce on the attention of all concerned the necessity for faculties. The Archbishop moved the reception of the report, and that the House give "a general approval" to the recommendations, and this was agreed to.

In a letter to the *Yorkshire Post* Messrs. Ackroyd & Best, Ltd., complain of the action of the Morley Building Committee as being prejudicial to the efforts made by the firm to assist the Government in the making of munitions,

(*Continued on p.* 86.)

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



THE MOOT HALL HEXHAM
From a Drawing by "EBOR."

THIS is a picturesque group of buildings originally part of the military defences. The low gateway surmounted by the tower for look-out purposes is part of the walls which at one time surrounded the town, and dates from about the twelfth century, portions having been added and reconstructed through the following four centuries. The buildings at the right with the large stair are of later date than the gateway or "bar" proper. The weather, unfortunately, has made serious inroads on the masonry and mortar of the structures.

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and granting credence to an *ex parte* statement they seem to have just cause. They say:

"We threw open our large works to assist the Government in any way possible; we have purchased a large amount of special machinery for carrying out this work, and have promised the Government a large quantity of fuses and other parts per week. To do the work successfully necessitated a large extension to our brass foundry. We notice that a large number of brass foundries in Leeds have chimneys only about 35 ft. high. In our plans we provided for a chimney 75 ft. high, but the Morley Building Committee in its wisdom and patriotism, refuse to now re-pass plans of this chimney which they approved of when we were building our works five years ago, but owing to a subsequent alteration in our system of manufacture we then suspended work on the chimney after getting the expensive foundations down and the walls up 6 or 7 ft. high, and now specially for Government work we want to continue the chimney up to its originally approved height of 75 ft., but are forbidden to do so unless we thicken up the walls from foundation upwards to comply with their regulations for a 90 ft. chimney."

An interesting effort is now being made to recover for Great Britain the position which it once held in engineering in China, and from which it had to retreat before the superior organisation of the Germans. Over the whole face of the globe there is no land with anything approaching the possibilities of China, especially for enterprises on the grand scale, which call for the most massive products of engineers in all branches of that highly varied trade. The matter has already been brought before the Leeds and other northern Chambers of Commerce. Some engineering centres have already warmly taken up the scheme, and the Leeds Chamber is to further consider the matter at a later date. In Leeds the project should acquire an additional interest from the fact that Mr. Michael Sadler, Vice-Chancellor of the University of Leeds, has been asked to advise upon educational methods for China. As education and enterprise in developing natural resources go hand-in-hand, it is possible that Leeds and Yorkshire may in the near future play a considerable part in the opening up of the immense resources of China.

At the annual meeting of the Devonshire Association held at Exeter last week, the Rev. J. A. Chanter presented the sixth report of the Committee on Church Plate, which had devoted its attention to the rural deanery of Chulmleigh. The one piece of exceptional interest was the fifteenth-century paten at Brushford, which was in very battered and bad condition, but appeared to have been in regular use for nearly 400 years up to 1850, when is was replaced by a modern piece and laid aside as worthless. It was only inquiries as to whether there was not anywhere a chalice cover that led to its discovery. It was specially interesting as the first pre-Reformation paten discovered in Devon. Elizabethan work was well represented in the deanery. Domestic plate given for use of the Church was excessively scanty as compared with other deaneries, and armorials were only found at Eggesford and Wembworthy. In the rural deanery of Hartland, of the more important places Hartland alone retained any pre-Restoration plate. Bideford was remarkable for the quantity and variety rather than the quality of its plate. At Northam there was nothing older than 1869. It was difficult to believe that during the latter part of the nineteenth century that parish should have had in succession two vandalistic vicars, and that one was actually made a prebendary of Exeter. Between them they sold or destroyed the entire ancient plate of the parish, consisting of an Elizabethan chalice and cover, three patens, two Queen Anne flagons, and a fine presentation salver, left by will to the parish by a former vicar. The most interesting piece in the deanery was the beautiful fourteenth-century chalice at Littleham. Very little pewter survives in the deanery.

At the same meeting Mr. H. Michell Whitley read a paper on Berry Pomeroy Castle. He said that amongst the castles of Devon two stood out pre-eminent for the magnitude of the ruins and beauty of the situation—Berry Pomeroy and Okehampton. The existing ruins were of two distinct periods, first, those of the castle of the Pomeroys built about 1400; and, secondly, those of the mansion built by the Seymours in the middle of the sixteenth century. There was originally a ditch, probably dry, across the narrow neck of land joining the castle to the hill on the south, but this had been filled up possibly at the time of the additions and alterations carried out by the Seymours. The defences consisted of a drawbridge (the sockets for the axles and the holes carrying the lifting chains still remaining), and a portcullis. The whole of the northern side of the castle is almost totally destroyed. Tradition said it was struck by lightning, and set on fire, and never rebuilt. It was in ruins in 1700.

Mr. A. L. Radford, in a paper on "The Walrond Screen in Seaton Church," mentioned that in the church previous to its restoration in 1866 was a north transept, doubtless built by the Walronds of Bovey Tracey (a junior branch of the Walronds of Bradfield), probably as a mortuary chantry, and the arms of the family appeared on the corbel of the window. That chapel was originally enclosed by an oak screen of open tracery. Subsequently portions of it were employed to give additional height to a large squire's pew, and, finally, on the completion of the restoration of the edifice they were removed —presumably for future preservation—to Bovey House, where they still remained, though certainly they deserved to be reinstated in their original position. The portions consisted of open tracery (temp. Henry VIII.), and were ornamented in the single red and white rose, the large double rose, and a series of shields with armorial bearings carved in relief, and exhibiting the descent of Walrond, of Bovey, and some of the earlier alliances of Walrond, of Bradfield, emblazoned in colours. Last year walking down Bond Street, London, he saw in the shop of an art dealer a canopy of a screen with the Walrond and other arms on it. He took a note of the arms, and on his return home compared them with Mr. Rogers's account, with the result that he discovered that the dealer had all but four shields. On his next visit to London he inquired about the missing pieces. He was informed that there were two more, one of which had been sold to a gentleman at Brighton. A visit had, therefore, to be made there to obtain the necessary drawings and measurements. The other canopy was in possession of the art dealer, but its shield had been carefully cut out and sold to a gentleman who claimed to bear the arms. That gentleman had recently had it erected in his house, about 1,500 miles west of New York, it being placed on the mantel of an oak panelled room originally from an old Elizabethan house in Herefordshire. Fortunately, the shield and arms could be replaced, as a sketch had been kept. All the canopies were now in his possession, with the exception of the one at Brighton. That, he trusted, would before long join the rest. It was also to be hoped that the screen might be re-erected in its original position.

WAR ITEMS.

In the House of Commons, Mr. Touche, M.P., asked the Under-Secretary of State for War whether, early in the war, the President of the Institute of British Architects submitted plans for wooden huts, and offered the services of a number of qualified architects and surveyors. Mr. Touche also wished to know if full advantage was taken of the offer of such plans and services with beneficial results.

"The President of the Royal Institute of British Architects," replied Mr. Tennant, "offered the services of the Institute in its corporate capacity to assist in any work carried out by the War Department. This offer

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was made in May, 1915, by which time the greater part of the work was finished, and hence comparatively little advantage could be gained by the War Department availing itself of the offer. No plans for wooden huts were submitted 'early in the war' by the President. A number of qualified architects and surveyors had offered themselves for service under the War Department, and after careful examination of their qualifications, several of these have been selected. At the beginning of the war, the President of the Royal Institute of British Architects was asked to send in the names of suitable men, and several of these have been given employment."

ILLUSTRATIONS.

"THE GLORY THAT WAS RHEIMS."

MESSRS. ERNEST BROWN & PHILLIPS conclude their summer series of exhibitions at the Leicester Galleries with one which will appeal to the artistic and noble instincts of that portion of the public which can appreciate "sermons in stones." Pity 'tis, though true, that it is not possible to see "good in everything"; but we cannot see good in the devilish work of the Teutonic Huns wrought against man, woman, child, art, and literature. And in proportion as people at the present day more widely travel and more generally read will be the duration of the reproach against the generations following that which translated Kultur into blood, rapine, and desolation. "The sins of the fathers shall be visited on the children;" and yet again, it may be said, in view of the Teutonic lack of artistic culture, that "the fathers have eaten sour grapes, and the children's teeth shall be set on edge."

But set forms of condemnation may be possible in the calm atmosphere of the study during the small hours and amidst the hush of traffic. It is not possible thus to formulate our sensations at the time of inspecting the series of photographs of Rheims Cathedral, past and present; if attention was at first rivetted on the former, there was ever present the surging, disturbing thought, "These are the *departed* glories," which, be it due to lack of time or lack of opportunity, we have never seen, and now shall never see. The destructive hand of Time may be condoned, while being regretted, for in consuming all things else, how should it spare Art? But wanton mischief merits condign punishment, and when we regard the score of photographs of the cathedral since the bombardment, our worst and best passions are simultaneously aroused.

This truly "remarkable series of two hundred photographic pictures of Rheims Cathedral, taken by the sculptor-restorer during twenty years," is a fine display of the "frozen music" of our art, and does infinite credit to the photographer, who has so well brought out the beauties and quaintnesses of the architecture and sculpture, and who has so satisfactorily reproduced in the enlarged pictures the texture of the stonework. It is not an exhibition where we can analyse and differentiate and separate. We could, in general terms, refer to the religious fervour which inspired the work in whole and in detail; we could instance evidences of the love of Art for Art's sake, and thus evince our sympathy (our rare sympathy) with Ruskin. But it has all been said, and well said and often said, before.

For the next two to three months the public will have opportunities of seeing and judging for itself; but it will have no desire to judge—it will simply admire and pass on and pass out in a turmoil of sensations which no one may perchance be able to describe, but with which all will be in sympathy and accord.

OXFORD COLLEGE SERIES.—CORPUS CHRISTI. Nos. 146 AND 147.

WE resume the publication of our Oxford College Series, of which the last appeared on July 31, 1914. A description of Corpus Christi College was given in our issue of July 10, 1914.

WHAT is believed to be the east gate of the Roman occupation of Caerleon has just been unearthed in Backhall Street. This is the first gate of the four to be discovered. The gate is of freestone, and though it lies in its entirety there is no trace of any inscription.

RENAISSANCE FONT-COVERS.

By J. TAVENOR PERRY.

COVERS to fonts were the invariable rule throughout the Middle Ages, but gradually since the Reformation, through decay or neglect or by ruthless destruction, a large number of these examples of ecclesiastical furniture have disappeared from our churches. In poor neighbourhoods under stress of circumstances the copper-lid has frequently been used as the family firewood; and, for less excusable reasons, font-covers, as well as other wooden church fittings, were, during the early post-Reformation days, committed to the flames.

The cover was an essential part of the font when, as was the ancient usage, this was left full of water, not only to keep it clean, but, and principally, to guard it against the spells of the Evil One. Thus when, under Archbishop Laud, or even earlier in some parts, a revival of ritual set in, those fonts which had been robbed of their coverings were very generally supplied with new ones, either at the cost of the parishioners themselves or by wealthy donors; hence the great number of covers dating from the seventeenth century, which are, perhaps, more numerous than those remaining from the Mediæval period.

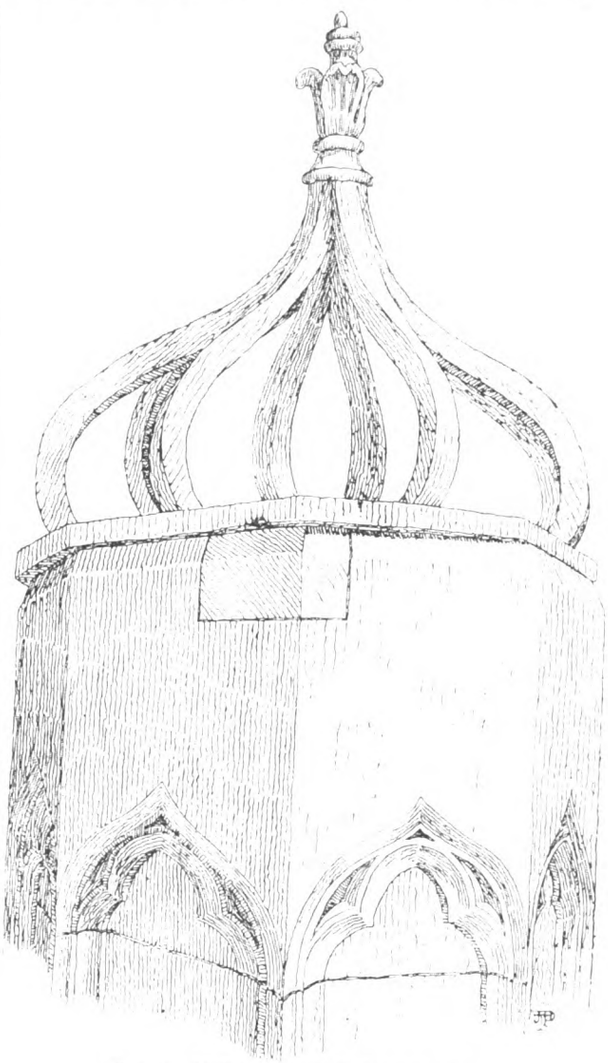


FIG. 1.—HOLY TRINITY, POYNINGS.

Many of the covers, however, made during this time disappeared during the last century, and even within the recollection of those still living, which were worthy of a better fate than destruction. Some active church restorer has looked askance at them as not being sufficiently Gothic to be permitted to remain in his restored building, and has therefore substituted something more academically correct of his own designing, often wanting in the grace, and certainly in the historical associations, of the discarded cover. Sometimes these disused covers have been preserved in some dark corner of the church; sometimes, with their history and even their provenance forgotten, they have drifted into museums or become the spoil of collectors, but

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in the majority of cases they have been ignorantly destroyed. This loss has often amounted to more than that of the mere covers themselves, for Jacobean woodwork frequently bears initials, monograms, or dates, links with

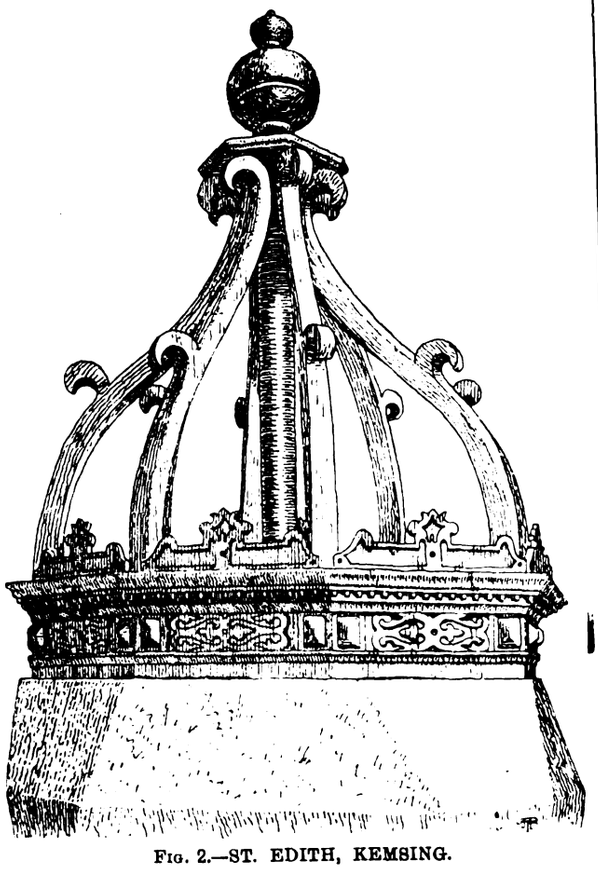


FIG. 2.—ST. EDITH, KEMSING.

the history of the county and its families, which have hence become irrecoverable.

The earlier font-covers in our own country were generally only flat lids of wood strengthened with iron bands; but

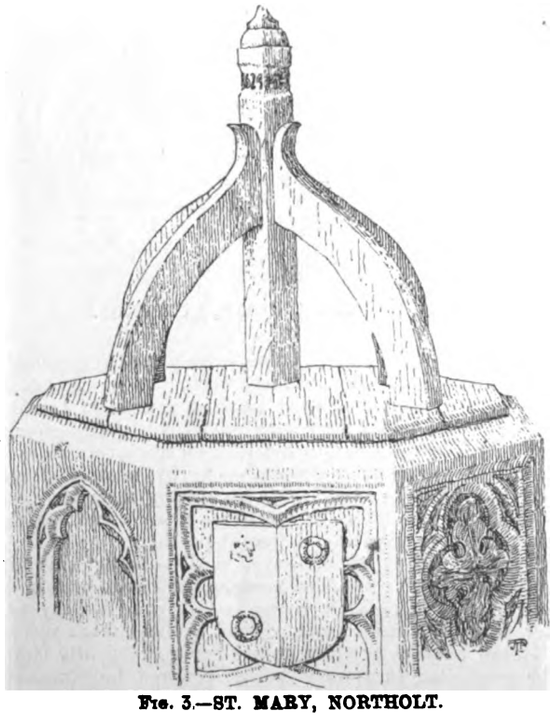


FIG. 3.—ST. MARY, NORTHOLT.

later ones, particularly on the Continent, were frequently formed as tall pinnacled spires so ponderous that they had to be suspended by chains and pulleys, or swung on massive iron cranes like that to the cover of the bronze font in the cathedral of St. Pierre, Louvain. But the Renaissance font-covers, while generally possessing a graceful pyramidal outline, were simpler in form than the Mediæval examples, although they aimed at more ornamentation than the purely utilitarian ones of the earliest period. Some of them were heavy enough to require raising by pulleys; and though these have been removed, the staples to which they were attached often remain a reminiscence to a picturesque method now seldom witnessed.

These Renaissance font-covers, where not dated, may generally be assigned to the same period as the pulpit or other similar woodwork remaining in the church, and often formed part of the post-Reformation reparations undertaken by the parish or by some benefactor at the suggestion of the bishop; but it not infrequently happens that the several fittings are obviously of various dates, and where there is no inscription or preserved record to fix the year of its erection the character of the woodwork can be the only guide. Jacobean ecclesiastical woodwork divides itself into two periods—the Laudian and that of the Restoration—the twenty years between which witnessed the Civil Wars and further destruction of church furniture. Of the

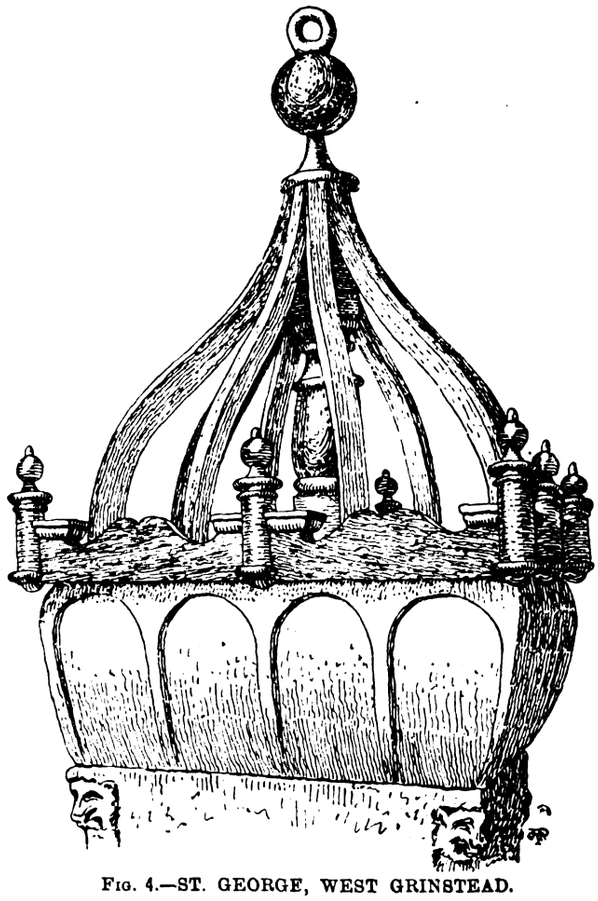


FIG. 4.—ST. GEORGE, WEST GRINSTEAD.

difference in the character of the work between these two periods there are certain though not infallible signs, for in the work of the Laudian period there is still to be traced a continuation of Gothic feeling, while the later work more nearly approximates to the Classic in its details.

Continuing in ancient fashion, many of the earlier covers appear to have been highly enriched with colour and gilding. but the later examples generally show the bare surface of the wood, oak, or chestnut as the case might be. As examples of the first period, but undated, we give the font-cover of Holy Trinity, Poynings, Sussex (fig. 1), as a very simple specimen, and one more ornate from St. Edith, Kemsing, Kent (fig. 2), which has roughly formed crockets on the arched ribs and delicate geometrical ornament round the base.

Another example from St. Mary, Northolt, Middlesex (fig. 3), is of the barest possible character, but is interesting, as it is dated and bears the initials of the churchwardens thus:—

MH. IW. CW. 1624.

The full name of one of these churchwardens, "Matthew Hart," with the date 1629, is also repeated on some wood panelling in the same church.

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We give two other undated examples, both from Sussex, probably of the Laudian period, one in St. George, West

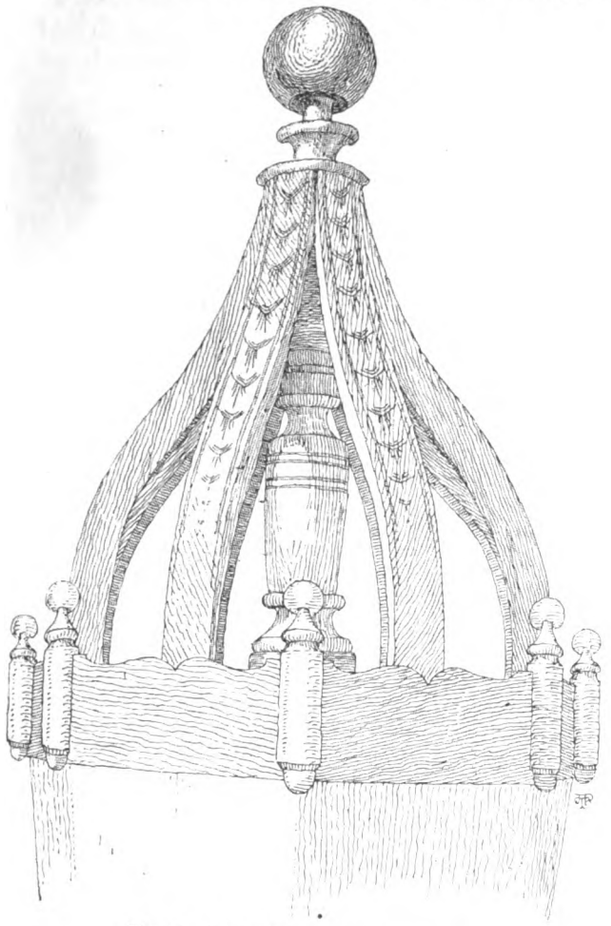


FIG. 5.—ST. ANDREW, NUTHURST.

Grinstead (fig. 4), and the other in St. Andrew, Nuthurst (fig. 5), which, in spite of their difference in shape, the one

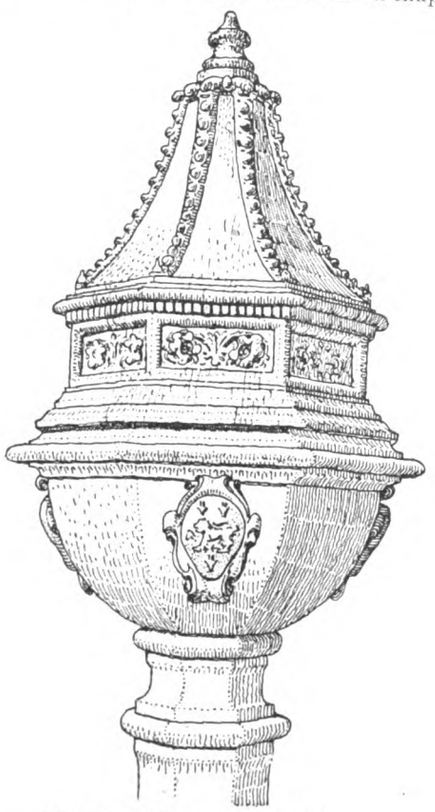


FIG. 6.—GREAT STANMORE.

being square and the other octagonal, following the plan of the font-bowl, seem not only to be of the same date, but the work of the same designer.

But more interesting than any of the font-covers yet described is the one remaining at Great Stanmore, Middle-

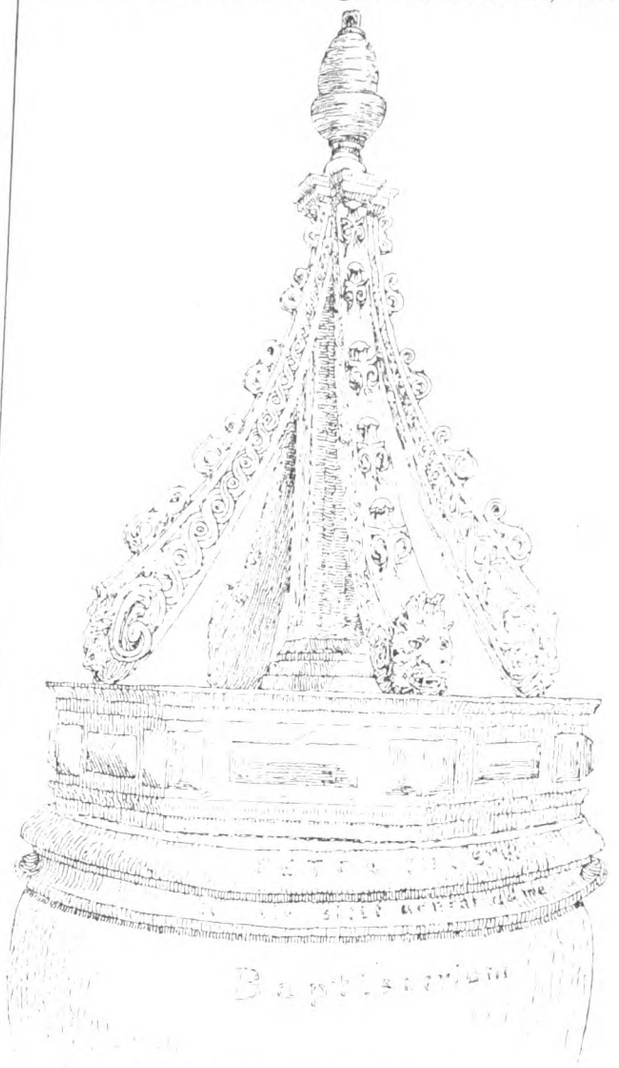


FIG. 7.—ST. STEPHEN, GREENFORD MAGNA.

sex (fig. 6), which belonged to the church erected under the direct auspices of Archbishop Laud, and now a picturesque



FIG. 8.—PERIVALE.

ivy-mantled ruin. The font and its cover, still preserved in the modern church, were both the work of Nicolas Stone in 1634, at the expense of Sir John Wolstenham, whose arms appear on the face of the bowl.

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The last two examples we shall give are somewhat remarkable inasmuch as each bears, either on itself or on the font below, the same family name; and they belong the one to the Laudian and the other to the later period, and illustrate in their details the distinctive features of each. The earlier one is in the church of St. Stephen, Greenford Magna (fig. 7), and the other in that of Perivale, or Greenford Parva (fig. 8), adjoining parishes in Middlesex; and the family of Coston, members of which were the donors of them, were landowners in both parishes, but seem now to be extinct. The cover at Greenford Magna is not unlike that of Great Stanmore, and displays in its outline and details distinct Gothic reminiscences, and the inscription on the font gives its date as 1638; while the cover of Perivale is dated 1665, and is quite Renaissance in style. The two inscriptions run thus: At Greenford Magna, "Petra Christus. si quis sitit veniat ad me Baptisterium, Ex dono Dominæ Franciscus Coston viduæ nuper defunctor, 1638"; and at Perivale, "This was the gift of Simon Coston Gent. Mar. 26, 1665."

Enough has been said to direct attention to these interesting but gradually disappearing church ornaments, and to suggest to the authorities that an eye should be kept on all known examples, so that if some ruthless restorer should eject one from his church it may get housed in some museum, lest a worse fate happen to it.

LONDON COUNTY COUNCIL.

REPLYING to Mr. J. D. Gilbert at this week's meeting of the L.C.C., Mr. Debenham, Chairman of the Establishment Committee, denied the accuracy of certain published statements to the effect that all work on the new County Hall had been practically stopped, and that an arrangement had been made with the contractors to pay interest on all plant remaining on the site, which would be unused owing to the stoppage of the work.

The number of men at present employed upon the site, said Mr. Debenham, was 408, and although the returns for the past two months showed only slight variations in numbers, no forecast could be made as to the number of men the contractors would employ during the summer recess.

THE BRITISH FIRE PREVENTION COMMITTEE.

THE following are special features of the war emergency work dealt with by the British Fire Prevention Committee during the first year of the war:—

1. *Fire Survey Force.*—At the outbreak of war the Committee formed a Special Fire Survey Force of 100 surveyors to undertake at short notice any fire surveys required by the Government in an honorary capacity. Over 900 establishments taken over for war emergency work all over the country were surveyed by this Force, with a total of over 40,000 beds. Latterly re-surveys are made in cases of special fire risk.

2. *Fire Warnings.*—The Committee's warning service embraced the preparation and free issue of a large number of public "fire warnings" in connection with the war emergency, disseminated by the Committee in the form of posters, circular letters, or as notices. The special classes of risk under review, for which special notices were issued, embraced hospitals, convalescent homes, refugee hostels, schools, billets, factories, and farms, for each of which a separate form of warning was prepared, while air-craft hazards were dealt with on general lines. The total issue of posters, &c., exceeds 200,000.

The issue of posters involved not only a careful distribution with directions, &c., but arrangements were also made for various organisations and societies to reproduce those that concerned their members, and the majority of the "warnings" were reproduced from time to time in the daily and technical Press.

3. *Fire Service Force.*—The Committee's Special Fire Service Force, organised by the Committee at the outbreak of the war, and comprising ex-fire brigade officers and firemen, was originally brought into such a form as to make 300 firemen readily available for mobilisation in sections within forty-eight hours.

4. *Generally.*—The whole of the complex work arising out of the above services has been carried out by a headquarters sub-committee, loyally assisted by the clerical staff of the British Fire Prevention Committee, and in its operations the Committee invariably kept in close touch with the Government Departments and other central authorities concerned.

The work of the Committee has been cordially received, and its technical inquiry office in particular was largely used by the public. The results of the work have been far-reaching. The great care taken by the public on simple, sensible, and inexpensive lines to prevent outbreaks of fire and to meet them with organised self-help is extraordinary, and must affect the reduction of the fire loss after the war as it has during the war. The fire loss during the war has been substantially reduced, the number and extent of the fires being materially less. Although there may have been fires in certain classes of factories and stores, due either to pressure of work, inexperienced personnel, or possible incendiarism, and some of these fires have been most inconvenient, yet the result of the work as a whole has been most effective in preventing loss of life from fire, in the conservation of property, and in reducing the inconvenience caused by fires in war-time. Indications of the appreciation of these results have not been lacking.

WESTMINSTER ABBEY.*

By FREDERICK HIGGS.

To visualise Westminster at its early beginnings, you must conjure up in your imagination an island mainly of the gravel drift of the river with an overlying deposit of reed or osier covered mud, just as we now see islands higher up the river, particularly at the confluence of other streams. At Westminster, indeed, one, if not more, little streams joined the Thames—the West Bourne, and probably the East Bourne also. Two years since, at our excursion to Kensington and Hyde Park, we traced the course of the former across the fields and swamps now known as Hyde Park, a course familiar to us as the Serpentine, under the bridge built to commemorate the Battle of the Knights, through Upper Belgravia, and across the grounds of Buckingham Palace and St. James's Park, all of which have been transformed under the hand of the builder and landscape gardener.

On this island, early in the seventh century, King Sebert of the East Saxons is said to have established the first Abbey and Church, and, having been completed, it was to be consecrated by Bishop Mellitus of London. On the eve of this event a Thames fisherman had crossed to the south side, when he found a stranger waiting his arrival, who asked to be taken across, a request which was readily complied with. While the man was waiting for the return of his passenger he was astonished to see the windows of the church illuminated with a bright light, and an angelic choir, singing heavenly music, descending and ascending from the skies; at the same time the air was filled with celestial odours. The passenger presently returned, and the waterman duly landed him at Lambeth, and demanded a fare, in response to which he was told to cast his net, which having done, he enclosed a great draught of salmon fish, which the stranger promised should never fail so long as tithe of the takings were paid to the Abbey on the island. He told the fortunate fisherman to take one of them to Mellitus, and tell how he had carried the Galilean fisherman, St. Peter, and witnessed the consecration of the building to the glory of God and in honour of St. Peter and all the hierarchy of Heaven. While twentieth-century incredulity may venture to doubt the literal accuracy of this pretty story, there is little doubt about the early foundation of the Abbey as indicated above.

Every such religious foundation gathered around it many houses, which were occupied by its numerous retainers and afforded accommodation for the crowds of visiting pilgrims who came to worship at its shrines, especially where, as was the case at Westminster, these were celebrated and numerous. Accordingly, there grew up the City of Westminster, mainly on the south side of the Monastery, while on the eastern side the kings built a palace. Thus the Abbey church became a Chapel Royal, and hence the great periods of building generally coincide with the reigns of those kings whose interests or religious zeal prompted them to initiate or participate in such operations.

Thus the building we have referred to as erected by Sebert was superseded by a structure initiated, and in large part built, by Edward the Confessor, some of which, as far as

* Read at a meeting of the Upper Norwood Athenæum.

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the monastic buildings go, remain to this day. Edward had spent many years in Normandy, and had acquired much of the culture of his hosts there; hence he set to work on his church in the Romanesque form then in vogue on the Continent. The Abbey church herein was a plain cruciform structure possessing a long nave of twelve bays of arcade: two narrow transepts, short, and with each a semi-circular chapel on their eastern side. The sanctuary had three bays on the straight, and an apsidal end with three semi-circular chapels; the nave and sanctuary had aisles, but the transepts none. Its length and width were approximately about the same as we see to-day, excluding the annexe we know as Henry the Seventh's Chapel, but its height was in all probability very much less. Edward commenced the work in 1055, and succeeded in completing the sanctuary, with probably transept and central tower, before he died, in 1065, when the new building was consecrated. The nave, replacing the old Saxon church, was not completed until ninety-eight years after (in 1163), when Edward's bones were removed to a shrine on his canonisation. The probability is that church building then, as now, was postponed until "after the war." For several decades the Conqueror and his Government must have had their hands too full in pacifying the inhabitants of this island, and building their feudal strongholds up and down the country, to give much attention to church building, a pursuit, however, which they very soon entered into with great and commendable zeal. Edward followed the distinctly Continental vogue in providing for a circular continuous aisle, or ambulatory, round the eastern end. He probably planned the entire building as completed after his death, and it is recorded that it had both central and western towers. The building is described as having high vaults, probably meaning a vaulted triforium, in which were placed chapels over those below, the church having ten chapels in and about the choir and transepts.

Edward's new buildings doubtless comprised the monastery as well as the church, for some of the work still extant shows the characteristics of the period. They embraced the usual monastic buildings, including an infirmary and chapel attached, dedicated to St. Katherine. These buildings suffered from the wear and tear of time, particularly in 1298, when it was destroyed by fire, but a great deal of its walls exist to-day.

This Norman church apparently did not for long satisfy the growing aspirations, nor perhaps the needs also, of the community. The shrine of Edward the Confessor had become celebrated and popular, and crowds of pilgrims visited Westminster to worship and to venerate his memory. His church provided no Lady chapel, and the growing veneration of the Virgin prompted the erection of one, which was consequently built in the early thirteenth century, being consecrated in 1220.

Henry III., the great King Builder of Westminster, was at that time quite a lad. He must have been present at this function, and perhaps then conceived the idea of rebuilding the Abbey on new and more glorious lines. Before fifteen years had passed he set to work, beginning with the sanctuary and transepts. The plans strictly followed the lines of the older building so far as the main axis of the structure is concerned, but laid down greatly extended boundaries in the form of chapels round the ambulatory, and made the new transepts nearly three times the width of the old very narrow ones. The architect of the building was in all probability a Frenchman, as the type both of planning and of design are distinctly Continental. For eight years the work progressed under the care of Henry of Westminster, for a similar period under John of Gloucester, and for seven years under Robert of Beverley, the work being brought to a standstill on Henry's death in 1272, at which time the sanctuary, transepts, and five easternmost bays of the nave had been completed, together with the chapter house and parts immediately contiguous thereto, and a new vaulted roof to the Lady chapel, whose consecration in 1220 I have already referred to. The building was considered complete enough for reconsecration in 1269, when Edward's bones were removed to the shrine in which they remain to this day, and the monks celebrated Mass in the new church for the first time on October 13 of that year. Mr. Francis Bond has calculated that from first to last Henry spent a sum equivalent to £750,000 of modern currency upon the portion of the building erected in his time.

The nave, as I have said, was half reconstructed by Henry, this work having been ordered to be done in 1258. After such an expenditure of building energy as was exhibited in Henry the Third's reign, it is not surprising that things fell flat at his death, and that fact is proof enough that it is to Henry himself that we owe the magnificent structure that is the admiration of everyone. For a hundred years the building remained half rebuilt, as just described, with the west half of the nave as constructed by Edward's successors joined up in some temporary manner with the new part. It may be a moot point from the architectural standpoint whether we are gainers or not by the total reconstruction to which the building was subjected, most of our old cathedrals showing a regular development of the styles of the periods in which the building took place, but in this instance it appears to have been necessary, the two structures being so dissimilar in character and size, except only in regard to plan, that they could not possibly have fitted on to one another.

Further, to cause delay, it would appear that the Abbey had lost favour somewhat with the succeeding monarchs, the three first Edwards, followed by Richard II. and Henry IV., taking more interest in St. Stephen's Chapel contained in the adjoining palace, which chapel was rebuilt by Edwards I. and II., endowed, and formed into a collegiate church with a dean and seven canons. Westminster, also as the depository of the Royal Treasure, fell into trouble owing to the thefts in 1303 of vast sums accumulated for foreign wars, which had been stored in the undercroft, or crypt, below the chapter house, and which, I presume, could not have been accomplished without some traitorous assistance from the monks. Henry V., however, was an enthusiastic supporter, though his reign was short.

It therefore largely devolved upon the Abbey itself to raise the needful funds to complete the rebuilding. We have already noticed that in 1298 a large part of the establishment was destroyed by fire; this appears to have remained unrestored for many years, and it fell to Abbot Langham, who ruled from 1349 to 1362, to set about this work, followed by Abbot Lytlington (1362-86). Langham, after leaving Westminster, went on to Ely, Canterbury, and Palestrina, and appears to have amassed great wealth, because in the latter part of his life he made regular and large contributions to the work of restoration and completion of the establishment, which he seems to have regarded with peculiar affection—so much so that he left his fortune, calculated at a present value of about £117,000, entirely for the prosecution of the work. Most of the money was apparently spent in the rebuilding of the cloisters and other of the monastic buildings, but nevertheless a start was made upon the completion of the nave, the first stone of which having been laid in Lent 1376 by Lytlington himself. Bond says that the work was accomplished in six stages; in any case it was spread over a very long period, as 1478 had arrived before the nave roof was completed, most of the vaulting and flying buttresses following by 1494, and the whole by 1517.

Henry the Seventh was the next great builder: he determined to rebuild the old Lady chapel, which, as we have already noticed, was consecrated in 1220, and accordingly commenced the work in 1502. His will clearly expresses his reasons; after sundry pious aspirations and prayers he leaves directions that he should be interred before the high altar in the chapel he was then rebuilding, in which his grandmother, Queen Katherine, wife of Henry V., lay buried. The illustrious architect responsible for the design was Robert Virtue, and Prior Bolton of St. Bartholomew the great master of the works. The cost of the building is estimated by Bond at £140,000 of present currency, with a further £100,000 for endowment to support a staff of priests, lay brethren, scholars, and almsmen for the regular performance of numberless offices. The building was completed in 1535.

Finally, in chronological order, we have the two western towers raised upon the lower portions, which were probably the last of the nave rebuilding in the fifteenth century. These raisings are poor specimens of Renaissance, and were erected between 1725 and 1745 by either John James, surveyor to the Abbey, or by Nicholas Hawksmoor. I have frequently heard them described as Wren's towers, but Mr. Bond attributes them to one of the two persons named. Wren states that late in the seventeenth century the west gable end of the nave roof was still weather-boarded; therefore the small gable we see to-day showing above the parapet, and having a Perpendicular window in it, was probably erected at the same time as the towers.

Having now traced the history of the Abbey and its building, I propose to deal shortly with its occupants and with the uses to which the premises were applied. Like

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many another such establishment, it was set up solely for the use and practice of men set apart for a life of self-denial and religious devotion, and never purported to be a place of worship for the surrounding population, though the people were free to use the nave for worship and to see and hear what was possible of the celebrations and functions that from time to time took place in the choir. Hence the idea of the builders was to construct an edifice as majestic and beautiful as they could conceive in honour of God the Father, the Divine Son, and His Mother. In an age when enlightenment through education cannot be said to have existed at all, it was natural that superstition should arise about the acts and deeds of saintly men after their death, hence their tombs became the goal of the pilgrimages of thousands and a favourite place for their prayers. In the case, such as this is, of a monastery adjoining the king's palace, the church came to be what we call a Chapel Royal, and in course of time a burying-place for kings; similarly it came into use as the proper place for Coronations, and for centuries Westminster Abbey has been the scene of these national events, though it is long since a king or queen has found his or her last resting-place within its walls. The religious system in vogue in the Middle Ages also promoted large and roomy buildings to accommodate the very numerous altars that were put up in honour of the Saints whose ghostly services by way of intercession were constantly being requisitioned.

Although, then, the number of monks resident in the Abbey proper was small, the accommodation provided by the building, large as it is, was not too great. Although, as we have seen, an establishment existed from the time of Sebert early in the seventh century, and little appears to be known about its occupants or their practices, it is on record that in the middle of the tenth century St. Dunstan installed twelve monks; 400 years later there were fifty, while at the Dissolution in 1553 the number was but thirty. Accommodation in the chapter house, however, was provided for eighty. The monks, who followed the rule of St. Benedict, were originally laymen who left the turmoil of the world and its worries and devoted themselves to holy living and prayer; living in this way, in community, and having a church of their own, it gradually became the practice for them to receive Holy Orders and become Canons Regular, hence eventually every monk was a priest. As the monastery grew older, so like similar institutions it grew in wealth and power, owing to the benefactions which were bestowed upon it during the centuries by pious founders who thought to atone in this way for misdeeds performed during their lifetime; hence the brethren began to employ hired assistants in their services to do most of the singing for them and other persons to perform the more menial work which their predecessors had done for themselves. The establishment also became, at a later date, a kind of hospital or retreat for old men who took refuge there from "the slings and arrows of outrageous fortune," and the infirmary with its chapel of St. Katherine annexed thereto was constantly occupied by such refugees. Possibly, nay probably, corruption and mismanagement had crept into the establishment by the time Henry VIII. decreed the suppression of the monasteries after an existence, in this case of nearly 1,000 years, and knowing the power of vested interests to-day and the extreme difficulty of disturbing their position, one cannot but wonder, and perhaps admire the courage and strength of that monarch, in taking this step in the face of the difficulties which must have confronted him, though I am quite certain that from the causes I have named, and from the too great influence wielded by these bodies owing to their immense riches, he must have had the bulk of such public opinion as could in that age express itself behind him in his drastic action; all I complain of is that, in so doing, he handed over the properties thus confiscated to his individual favourites instead of to the trusteeship of the State, which was, of course, in those days the Crown, whereby the nation would have been greatly benefited, and perhaps to-day we ourselves should have been free of taxes altogether, and be quit of the nightmare of Chancellors of Exchequer.

As to the Abbey church from the architectural point of view, I am not in a position to speak with authority, not being a trained expert in the art, only as a layman whose occupation and business training has brought him from time to time into contact with the visible results of the varying practice of our ancestors and engendered in his mind an admiration for the characteristics and forms of those productions. It appears to me, then, that we have in this building an example mainly of the most beautiful period of church architecture; it is a combination of simplicity, dignity, and beauty. I speak, of course, of the thirteenth-century work of Henry III. and the building period which followed it, and which in the main copied it. The cold and hard severity of the Norman has gone, and in place of this we have greater height bringing added dignity without producing the overpowering sense of height which the Perpendicular period compels. Similarly, the ponderosity of construction practised in the eleventh and twelfth centuries has yielded to the lighter methods which, while not affording less support, has cut away redundant bulk and applied its force with much greater economy. The round arch, so beloved by the Normans, has taken a simple lancet shape, and a peculiar element of simple beauty has been added thereto in the large but very proportionate cuspings, with the central traceried openings above the mullions of the two-light windows. The severe mouldings and detail of the twelfth century, whose only relief consisted of a form of enrichment, which may not unfairly be described as, in many respects, barbarous, have been replaced by elegant, yet simple, lines and shapes ornamented by decorative representations to a limited and restrained extent of objects taken from the illimitable Book of Nature. The cold oppressive vaulted ceilings, suggestive of a powder magazine or a wine cellar, that the Normans show us, have now become light pointed stone filled roofs, having simply designed stone frames or ribs continuing up from piers starting from the floor and branching out at the springing level along each of the planes of the vault, with a corresponding rib carried across direct to the main central ridge rib, thus producing the same impression on the beholder as is formed by a grove of lofty trees with interlacing branches overhead, through which one can see the blue vault of heaven in the background. As mentioned before, those responsible for the rebuilding of the western half of the nave recognised the charm of the style and continued the work which had been so well begun, although the tendency of the time must have undoubtedly been powerful in the direction of the characteristics we know as Perpendicular. Indeed, I have fancied I have detected a flavour of this in the shapes of the main arcade of the western half of the nave which give one the impression of being slightly elliptic, but perhaps the stilting of the arches may produce that effect on the eye, as I do not remember having read in those of the authorities that I have studied of any such peculiarity. It is quite easy to distinguish this part of the nave from that built by Henry, as, inside, the latter has all the spandrils of the nave and triforium arches decorated with a diaper ornament, whereas the former is quite plain; and, outside, the later work has, just below the eaves parapet, a moulded string course having carved ornaments at intervals, whereas the earlier has no such course. Before leaving the subject of the main part of the church I should like to call attention to certain main principles of proportion adopted by Henry III.'s architect in comparison with those shown in other examples.

In the first place, you will observe the comparatively short spans of the nave arcade, the piers are placed at about 18 feet centres. This is considerably less than you will find in many of the other contemporary cathedral churches. Henry, it is true, followed the old foundations of his Norman predecessors which were doubtless well and truly laid, and this saved him some trouble and expense; but acting from this starting-point he so proportioned his superstructure that the result is particularly satisfying to the observer. The proportion of spans transversely is as one to two to one—viz., 20 feet aisle, 40 feet nave, and 20 feet aisle again. Vertically the height of nave is nearly four times its clear span divided into three storeys, 50 feet arcade, 20 feet triforium, and 30 feet clerestory, and the result, as I have said, is most pleasing. Winchester has its nave spans wider and arcade much more lofty at the expense of triforium or clerestory, or both. Many other instances could be named having proportions respectively three, two, and one or three, one, and two, but in fixing five, two and three, Henry's designer hit on the happy medium as he did in the total height relative to the whole span. Thus we get the impression of much greater height than is actually the fact, particularly viewed from east or west ends, when the full length of the building can be seen. The length of the nave alone is six times its clear width, while the full length, excluding the Lady chapel, is eleven times, being nearly 400 feet long, the whole building being about 525 feet from end to end inside.

The other main architectural distinctive style (apart from

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the bits of Perpendicular at the west end, which are not of sufficient importance to affect the impression of the whole) is that of the new Lady chapel built by Henry VII., which is at once the wonder and admiration of all intelligent visitors, and of architectural students in particular, both on account of its marvellously clever constructional design and execution, as well as for the entrancing beauty of its almost superabundant ornament. The principles of support and thrust applied in the Gothic-church construction here attain their zenith. You have set forth how to build a church with very heavy upper works upon a series of comparatively small piers, the intervening spaces being filled up with windows and walls of extremely light character. You see also a type of ornament involving the support of very heavy weights in the vaulting, daring and yet quite sound and safe. These numerous pendant vaultings covering the main ceilings are each held up by a main key post, which is itself one of the voussoirs of the main vault rib arch, and all the surrounding vault ribs are dependent on one of its lower members, the webs in their turn as usual being supported by these ribs. The thrust of the elliptic main vault is transferred to quite moderately heavy piers at a comparatively short distance away, each surmounted by a pinnacle to prevent overturn, the whole leaving at once a satisfying impression of lightness and strength. The designer reduced the weight of his vaults very much by the device of chiselling away the upper or back surfaces to the minimum, some of the webbing being, I understand, no more than three inches thick, while he detracted also from the weight of his pinnacles by forming thereon niches for statues, which, however, have never been filled. He appears to have been a past master in the art of delicate equipoise, having succeeded in constructing a building with heavy stone ceilings and leaden roofs with the absolute minimum of lateral support, the flying buttresses over the aisle roofs being quite unobtrusive (showing thereon a great contrast to the earlier thirteenth-century work) and being like the rest highly ornamental, and having a large proportion of their substance removed by pierced panellings therein.

The Perpendicular Gothic has here developed into the Tudor form. The arch, with its point more or less aggressive, has softened down into a graceful ellipse; the details of the mouldings and the general proportions of this detail have fined down into small and very beautiful forms; the panelling, whether solid or in window form, has all become small, almost *petite* in character. The passion for ornament has grown to such an extent that there is hardly a piece of plain face work to be seen in the whole place, whether externally or internally. Enrichments in one form or another crowd over one another everywhere, heraldic shields and like forms predominating. There is no doubt that in this building ornament is carried to excess, as the eye wanders over it in vain to find some piece of simple work to rest upon; but, bearing in mind the purpose for which it was built, it may be taken as the expression, in a spirit of almost reckless abandon by Henry VII., of the very utmost he knew in the way of art at a cost on which he placed absolutely no limit. Although he did not live to see the work completed, he left in his will minute instructions relating thereto, charging his executors that the place should be "painted, garnished and adorned in as goodly and rich a manner as such a work requireth, and as to a King's work appertaineth"; and as to the altar furniture, "our mind is that they shall be of such price and value as appertaineth to the gift of a prince." These directions appear to have been faithfully carried out, the stained window-glass in particular having been exceedingly rich; it was copied soon afterwards for the windows of King's College Chapel, Cambridge, which are happily still in existence, while their originals, together with much of the other embellishments, were either actually destroyed or allowed to fall into decay during the century immediately following the Dissolution of the monasteries and the Reformation. Of stained glass in the Abbey there is not much to say; nearly all of it is comparatively modern; but of this, the new Bunyan window by Comper is an example of originality, in design and composition, quite worth attention. The oldest windows are those to the clerestory over the eastern end. Of monuments, what can I say within the compass of a U.N.A. paper, and this already tiresomely long? The Abbey has become a veritable national mausoleum. Did not someone say before going into battle, "Victory or Westminster Abbey"? and the latter lot has certainly fallen to many a warrior, whether victorious or otherwise. Statesmen are represented galore, some in plain clothes and some in gorgeous apparel; poets and philanthropists are there, but, as is usual in this world, most of these, whose objects in the main were the benefit, and not the destruction, of mankind, have to be content with modest tablets recording their names, when they lived, and perhaps a few lines, poetic or otherwise, about them. After all it may be meet that this should be so, as their work lives after them and is eternal. Ecclesiastics, of course, there are; we should look for those princes of the Church who ruled the destinies of the great establishment whose history we are considering, but, of course, the chief monuments are to kings and queens, many of whom were largely instrumental in the erection of the building. Those in the Lady chapel, like the rest of this place, are superlative in gorgeous ornament and expensive craftmanship. The tomb of Henry VII., designed by Torregiano, is a conspicuous example, likewise that of the Countess of Richmond and many others. The shrine of the Confessor, erected by Henry III., and the tomb of Henry III. himself are particularly curious by reason of their Italian design and execution at a very early period of Gothic art. The Abbey monuments deserve extensive study, and would well occupy a paper devoted alone to the subject, and I will only add that, comparing the styles from the earliest down to the most modern, one cannot but be impressed by the grace and beauty of the former, and regretfully note the progressive retrogression of these characteristics as the centuries passed along. I have now finished what cannot be otherwise than a rough sketch of this most absorbing and entrancing subject. I have already acknowledged as source of much information Mr. Francis Bond's work on the Abbey.

The Abbey Guide has also been laid under tribute, and we all owe very much to Mr. Weller, the chief verger, to Mr. Bowler, the sergeant of Westminster School, and to Mr. Wright, the Abbey clerk of works, for their kind assistance and co-operation in bringing the afternoon's ramble to a successful conclusion. Gentlemen, I thank you.

THE IMPROVEMENT AND MAINTENANCE OF HIGHWAYS IN CONNECTION WITH MODERN TRAFFIC CONDITIONS.*

By C. F. GETTINGS, M.Inst.C.E. (Member), County Surveyor, Worcestershire.

THE title of this paper submitted by the President covers a large area, and it is quite impossible to deal fully with the subject in a paper of this kind. As the author understands that another paper is being submitted on this subject, he proposes to deal with the matter in a brief form, considering the subject principally in connection with county main roads.

It is assumed that the majority of county main roads, excepting those adjacent to London and some in Lancashire, were constructed with ordinary macadam waterbound until the advent of the Road Board, when funds were provided from the Exchequer towards the cost of improving the surfaces in order to contend with the altered conditions of traffic.

Before an ordinary macadam surface is converted into some other form of construction, some reliable information should be obtained as regards the life and cost of maintenance, so that the figures can be compared with the estimated cost of construction and maintenance, together with the life of the new surface material. Unfortunately the author has found it exceedingly difficult in many cases to produce reliable figures owing to the fact that the costs of repairs have not been properly allocated, the cause of this being due largely to the surveyor not being provided with an adequate staff. It is suggested that this leads to false economy, and if public authorities would recognise this many offices would be placed on a proper business basis. The author is a strong advocate of costs being carefully recorded, and when possible to have them shown in diagram form so that a period of years may be seen at a glance.

The author did think of endeavouring to prepare a table showing when it is desirable to alter the type of surface material; but he has come to the conclusion that the information he has at disposal is not sufficiently reliable to enable him to prepare an accurate table, and probably estimates of the life of various surface materials would be

* Paper prepared for the 42nd Annual Meeting and Conference of the Institution of Municipal and County Engineers at Westminster.

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misleading without knowing the conditions of traffic. He is, however, keeping a careful record of the work carried out in a scheme he has in hand, including actual initial cost and maintenance charges, and he hopes to be able to submit reliable data to his Council at a later period. Progress records of work carried out are being made, so that each section of road can be readily referred to.

The type of construction to be adopted will vary in every county, also in various parts of a county, according to local conditions and the class of traffic that has to be dealt with, and the author suggests that it is desirable to divide the roads into three classes and fix up a standard for each class as regards surface material according to traffic conditions, and to deal with the foundations and subcrust having regard to information that is obtained from actual trial holes and careful examination.

The first thing to do is to obtain a census of traffic in the form similar to that adopted by the Road Board, and after this has been calculated it should be plotted in a diagram. The author is of the opinion that it is important to divide the different classes of traffic, as this has an important bearing in assisting to decide upon the kind of surface material to adopt.

Trial holes should be made at frequent intervals on the existing roads and careful records taken, giving particulars of subsoil, thickness, and class of existing material, together with any local information as regards subsoil and surface drainage, gradients, &c. Inquiries should also be made as to what local materials are available, together with prices delivered to road.

As several excellent papers have been published fairly recently giving descriptions of various surface materials that have been used during the last few years, the author does not propose to repeat them, as they are generally known to members of the Institution; but he proposes to deal more particularly with some methods of construction which have been carried out under his supervision.

Unfortunately the majority of roads in the county of Worcester lie on a clay subsoil and have no foundation, so that it is necessary to provide subsoil and surface water drainage and strengthen them before an improved surface can be laid, as in a scheme which the author is now carrying out, and which is estimated to cost about £127,000. The minimum width of carriageway has been fixed at 18 feet, and the more important roads vary from 20 to 24 feet. In the majority of cases this means widening the existing roads from three to five feet. Generally there is a footpath on one side of the road, and this is being treated in the manner shown on section.

The author advocates trenching the sides, especially in clay subsoil, to prevent lateral spreading, and he has found the cost of this works out cheaper than a submerged kerb besides being more efficacious, although he believes in having a kerb to hold up the surface material if the traffic justifies the expense. He has also found that a bed of clinker ashes three to four inches in thickness on the bottom of the trench prevents the clay from squeezing through the foundation material, and forms an excellent dry bottom. Nearly thirty miles of roads have been dealt with during the past two and a half years on this principle, and so far no trouble has been experienced. Fortunately excellent cold blast-furnace slag is obtainable within thirty miles distance, and this makes one of the finest ballast materials the author has had experience with.

As regards ballast for strengthening, the author is of the opinion that it is not always the hardest material that is the most suitable, providing the bottom is well drained, and the surface is sealed with bituminous material.

Considerable care is taken with the laying of the foundation material to a proper contour, especially on all bends where the outer portion of curve is raised proportionately to the radius. Each foreman is supplied with a special gauged straight edge with spirit level, and the levels are carefully checked.

On a gravel or sandy subsoil with a reasonable subcrust and surface material from six to eight inches in thickness, the author has found that a road will stand light motor traffic up to 100 tons per yard width per day, provided it is tar-painted annually, but immediately a fast heavy motor traffic, such as the motor 'bus or lorry, come along the road soon develops pot holes and corrugations.

When a waterbound macadam road which has been tar-painted will not stand up to the traffic one of the most common forms of conversion is tar-macadam consisting either of slag, limestone, or granite. Opinions differ as to the merits of the various materials, but generally with this class of construction the author ventures to suggest the results obtained from tarred slag have been the most successful, and least costly. He has laid many miles of each kind of material, and frankly admits that slag has come out top, although he has obtained some excellent results in Devonshire with limestone, when there has been a moderate traffic.

Undoubtedly there have been many failures with each class of material, and unfortunately, the author has had one with limestone tar-macadam in Worcester. In this case the material was supplied ready mixed by a contractor, and it was proved that the fault lay in the stone not being properly dried, an inferior sample of tar being used, and indifferent mixing in a continuous mixer. The binding properties were taken out of the tar through it being overheated, with the result that after it had been laid a comparatively short period the surface disintegrated, and would not stand up to the traffic. The author's experience with limestone tar-macadam is that it requires very close supervision; the stone should be thoroughly dried, but not overheated, and it is necessary to make careful experiments to find out the best mixture according to the class of stone to ensure uniform results.

The method of construction generally adopted by the author for laying tar-macadam is known as two-coat work, but he believes that he varies this rather from the usual form. The bottom coat consists of 2¼-inch gauge material racked with 1 inch to 1½ inch material, this being lightly rolled with an 8-ton roller. A light layer of ⅜-inch gauge material is then spread on the surface immediately before applying a coat of 1 inch to 1½ inch material, these materials are consolidated together, and a sprinkling of ⅜-inch material sufficient to fill in the interstices is then applied and rolled; the surface is then dusted over with fine material, and the total thickness when finished is 3¼ to 3½ inches.

The author prefers this method of construction to using graded material, as in his opinion a more uniform size of material is used with greater strength, in addition to which there is the advantage of being able to strip the top coat quite independent of the bottom when it is necessary to repair.

The system of what is known as pitch- or tar-grouting was brought into operation to a considerable extent some five or six years ago. There have been successes and failures, and on the whole the author ventures to suggest that the results have not been so uniform as those obtained with tar-macadam which has been brought on to the site previously prepared and ready to lay. The author has laid some miles of pitch-grouted work, and, although he believes his work compares favourably with that laid in other counties, he is not satisfied with the results. Clee Hill stone was used, and he had a complete portable plant consisting of boilers, mixer driven by small engine, sand dryers, Wells surface dryers, &c. Medium pitch and creosote oil of a special quality were obtained, and careful analysis made before being used, so that a correct proportion of each material was used in the mixture. The stone was spread in the ordinary manner and mixture applied by hand from ladles and cans. There are a number of difficulties in the grouting method which prevent uniform results:—

1. The climatic conditions are an important factor, as unless it is dry it is impossible to do satisfactory work.
2. It is difficult to get an even mixture.
3. It is almost impossible to get even distribution.

As a general rule, the surface is more or less affected by high temperatures, and it has a tendency to become soft; the surface is also inclined to be slippery in winter.

The author has experimented with a surface sealing coat on tar-macadam consisting of a proportion of bitumen, but as the section has only been laid a few months he is not in a position to give any information, excepting that it is an extra cost above ordinary tar-macadam work. He is inclined to think that the principle is right where the traffic justifies the extra expense.

Worcestershire has not yet entertained asphalte construction in consequence of the initial cost and not having suitable foundations on which to lay it, but the author thinks that there is a future for Trinidad Lake bitumen laid in a carpet method where foundations have been previously laid with a tar-macadam surface, especially where one has to contend with a fast heavy motor traffic. The author has inspected the sections laid by the Limmer and Trinidad Lake Asphalte Companies for the Middlesex County Council on the Bath and Staines Roads several times, and is of the opinion that they are excellent surfaces, especially the latter road. The only fault he has to find is that they are inclined to be slightly wavy, but at present he is unable to see that this is seriously detrimental; it is purely a

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matter of degree, and one that has not yet been overcome. It would be interesting and valuable information to have the particulars of traffic on these roads together with the method of construction, &c., initial, and maintenance costs.

Several sections of the non bituminous type—such as Ferromac, Rocmac, and Vianex—have been laid under the author's supervision, but these have been used principally on hills. Fairly good results have been obtained, but the author would certainly advise that the surfaces should be treated with a bituminous sealing coat wherever the gradient permits. He has obtained the best results when the materials have been mixed in concrete form, and laid between the months of April and September.

It is not proposed to deal with wood or sett paving, as although this class of construction has to be dealt with in the north part of Worcestershire, owing to initial cost it is a form of construction generally laid in congested areas or under exceptionally heavy traffic conditions.

During the last few years some excellent portable mixers for bituminous material have been put on the market, and in a number of counties where they are not well situated for obtaining supplies they have proved to be economical. In the event of it being found desirable to manufacture your own material, the author favours establishing central depôts, preferably adjacent to the quarries where the stone is obtained.

It is suggested that a material has not yet been invented in this country that is equally suitable for mechanical and horse traffic, especially for gradients. Many attempts have been made in this direction, but the author is of the opinion that there is not a bituminous material on the market on which under certain conditions of weather it is safe to put a draft horse on a grade of less than 1 in 20. The nearest approach to this are mixtures which contain a large percentage of Trinidad Lake bitumen, but unfortunately the cost of this material prohibits its use excepting on heavily trafficked roads.

Opinions are frequently expressed that surveyors neglect to consider the horse when designing a modern road, and although this is not true, it is fair to say that preference has now to be given to a form of construction that will stand heavy motor traffic. At the termination of the war it is practically certain that motor traffic will increase abnormally, and the author is of the opinion that the primary thing to do is to obtain a substantial foundation upon which it will be safe to lay an expensive surface material at a later date to withstand the traffic, as he believes that the time has arrived when all trunk roads have to be constructed to bear motor traffic carrying heavy loads, and travelling at a speed of twenty miles an hour.

Under the present system of taxation it is manifestly unfair to those counties where they have a considerable quantity of through traffic, but it is anticipated that some tangible assistance will be given from Government grants under a suggested system of classification, which has had to be abandoned for the time being.

TRIAL SECTIONS.

Worcester—Droitwich Road.

In connection with the Road Board reconstruction scheme the author is carrying out, it was arranged to lay down trial sections on the Worcester-Droitwich Road, the surface materials consisting of those that could be reasonably entertained in the county having regard to their initial cost, and although these sections have not been laid two years until next August, the author thought the information that he has given to his council might be of interest to the members of the Institution, and he submits it for what it is worth.

The site chosen is on the Worcester and Droitwich main road at Perdiswell, and the first length commences at the Worcester City boundary.

The road is very nearly level and straight, has an open situation, and is well drained, but is not kerbed on either side.

There are seven sections each about 150 yards in length, the total length being 1,096 yards. The road is twenty feet wide, and the superficial area is 7,446 square yards.

Previous to reconstruction the road averaged 18 feet in width, and the surface consisted of a very thin coat of Clee Hill granite, laid on a sub-crust of gravel. The old road was left undisturbed and the sides widened out to give the present width of 20 feet. A trench about two feet wide and nine inches deep was excavated on either side of the road and filled in with 6-inch broken slag.

The sides were rolled and then a strengthening coat of 3-inch to 5-inch slag was laid throughout and consolidated to a thickness of five inches by a 12-ton roller.

The various kinds of surfacing materials were laid to a depth of from three inches to 3½ inches when consolidated and rolled by an 8-ton roller, except in the pitch grouted section, on which a 12-ton roller was employed.

Both the foundation and the surface coats were laid half the width of the roadway at a time, but only in short lengths, and the traffic was kept going without interruption during the progress of the work.

The whole of the work was carried out by the County Council's own staff, and all the various kinds of tar-macadam were laid by the same gang of men to ensure uniformity of work.

All the sections were tar-painted during June 1914, and

WORCESTERSHIRE COUNTY COUNCIL ROAD BOARD SCHEME.—*Trial Sections.*

Worcester—Droitwich Main Road.

No. of Section.	Name.	Date of Completion.	Weather during Laying.	Area.	Cost of Construction.	Cost per sq. yd.	Particulars and cost of Repairs carried out.	Condition during Winter.	Conditions during Summer.	Condition of Surface May, 1915.	General Remarks.
		1913.		sq. yds.	£ s. d.	s. d.					
1	"Tarmac" (Tarred Slag)	Aug. 25	Fine ...	1,130	134 7 6	2 4½	Nil	Not unduly slippery.	Satisfactory	Very good	This section is in excellent condition.
2	Smart's Slag Tar-macadam	Sept. 4	Fine ...	1,023	114 3 10	2 2½	Nil	Not unduly slippery.	Satisfactory	Very good	This section is in excellent condition.
3	Tytherington Tarred Limestone	Sept. 11	Showery	1,053	134 18 1	2 6½	Patched May, 1915, £9 14*s.* 1*d.*	Not unduly slippery.	Soft under the influence of the sun.	Fair ...	This section is not altogether satisfactory, as it does not withstand changes of temperature.
4	Malvern (Pyx) Tarred Stone	Sept. 17	Fine part of time, showery part of time.	1,053	135 13 3	2 7	Arrangements have been made to re-top this section immediately	Surface broke up during wet weather, and was very muddy.	Softens under the influence of the	Pa l ...	This section is not satisfactory, as it does not withstand changes of temperature. The half-width of road on West side is wavy, and there are many potholes.
5	Abdon Clee Hill Tar-macadam	Sept. 24	Showery	1,100	138 1 10	2 6	Patched May, 1915, £8 10*s.* 8*d.*	Sealing coat liable to break up in small patches.	Good, no softening.	Fair ...	The surface was sealed with tar-painting, 1914, but this wore through in places during last winter, and potholes were formed down centre of road.
6	Northern Quarries Tarred Leicestershire Granite	Sept. 25	Showery	1,000	154 2 3	3 1	Patched by N.Q. Co., Nov., 1914. Must be re-topped this summer, 1915.	Sound, but very uneven.	Soft in hot weather.	Very uneven	This section was one of the best until the warm weather affected it. During the summer 1914, it was very soft. In addition to this, the surface was forced out of its original shape and is wavy
7	Pitch grouted Clee Hill Granite by (W.C.C.)	Oct. 13	Very wet	1,087	141 1 7	2 7½	6 sq. yds. replaced by Tar-macadam, April 1914, 19*s.* Small holes patched May, 1914, 9*s.* 1*d.*	Fairly good, but inclined to be slippery.	Inclined to be rather soft during very hot weather.	Good ...	The weather during the construction of this section was exceptionally unfavourable. The surface is slightly on the brittle side during frosty weather.

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in nearly all cases the tar-painting had a beneficial effect, particularly in sealing the surface layer and in preventing this from breaking up.

The details of cost and report on condition are set out in the tabular form on the preceding page.

At the present time there is plenty of scope for experimental work in consequence of the rapidly changing conditions of traffic, and the author is of the opinion that every county should carry out a number of practical experiments, especially where suitable local material can be obtained, and these should be followed up with accurate laboratory analyses so that an exact record can be compiled for comparison.

After a first-class road has been constructed it is necessary that it shall be properly maintained if economical results are to be obtained. This requires careful and constant supervision on the part of the surveyor's staff, and it is necessary to educate men to their work. Where small repairs are necessary the author has found that a self-contained light patching roller does much better work than the heavy machine, besides being much quicker. He has two of these machines, together with trailers, sleeping vans, &c., in his county, and they are giving excellent results.

Before concluding this paper the author would like to refer to the question of "contract" and "direct administration" systems, as he has had experience with both. In his opinion there is not the slightest doubt that the system of direct administration gives the greater satisfaction. With the contract system it is almost impossible to check the quantity of materials used or labour expended, and although contractors may be quite honest in their intentions there is invariably a tendency to take a risk that would not be done under direct administration. As a comparison the author would suggest any railway company contracting for the maintenance of their tracks, and, as all companies maintain their own, it is evidently considered a sound policy from a commercial view.

The author suggests that the best results are obtained by dividing a county into districts and having a competent assistant in charge working under the county surveyor from headquarters. If the work is centralised there will not be any overlapping, and it will be carried out economically with uniform results.

In order to obtain an efficient system it is absolutely necessary for an authority to have a qualified and loyal staff who are adequately remunerated for their services.

FEDERAL COUNCIL OF THE AUSTRALIAN INSTITUTES OF ARCHITECTS.

THE Federal Council has at last been founded, after an interval of fourteen years since the first attempt to bring the Architectural Institutes together in 1901. The consummation has been obtained because federation, and not unification, was the goal, says the "Journal of the Royal Victorian Institute of Architects." Australia, it is now realised, is too large a territory for its architectural business to be transacted from one centre, and not even a fixed centre at the best.

The Federal Council is based upon other lines. There are six States in the Commonwealth, and each has its own Institute of Architects. The States vary greatly in size, as do the Institutes, New South Wales and Victoria ranking as the two larger Institutes, whilst Tasmania is the smallest. If, therefore, there was to be anything like equality of representation upon the Federal Council, it became necessary that each State should have an equal number of representatives and equal voting powers. The idea of the formation of the Council is to be found in the Conference of the Presidents of the State Institutes, held in Melbourne last year. This Conference, it will be remembered, was convened by the Minister for Home Affairs in Melbourne for the purpose of nominating a Chairman of the Board of Adjudicators, to deal with the designs to be received for the Federal Parliament Houses at Canberra. The six Presidents worked up the idea of forming the Council, and they well realised that their action was in accordance with the feeling for greater unity amongst the profession throughout the Commonwealth. At the invitation of the Institute of Architects of N.S.W., a further Conference was arranged, to meet in Sydney in November of last year. To this Sydney Conference each Institute sent two representatives, and the principle of federation, rather than unification, was agreed upon as a working basis. The general resolutions of the Conference having subsequently been laid before the various Institutes, the policy which had been adopted was affirmed by the Institutes. A further Conference was held in Melbourne last month (April), and the following is the basic resolution which was unanimously adopted, and upon which the Council was constituted:—

"Whereas it was resolved at a Conference of representatives of the State Institutes, held in Sydney in November 1914, 'That it was desirable to form a Federal Council to represent the State Institutes of the Commonwealth,' and this being confirmed by the respective Institutes, the said Federal Council is hereby constituted.'"

Having been duly constituted, the first business was the election of the President and the Secretary and Treasurer. Mr. A. W. Anderson, the President of the Institute of Architects of New South Wales, was unanimously elected the first President, and Mr. W. Newman (N.S.W.), the Secretary and Treasurer. It is obvious that both these officers must belong to the same State, otherwise the administrative work, when the Council is not in session, would be difficult. The members of the Council are to be appointed by the Councils of their respective Institutes, the term of office being twelve months. The Councils of the States other than the State in which the Federal Council is sitting, are empowered to appoint substitutes to take the places of any of their representatives who may be unable to attend the Federal Council. In order to provide against a minority of the States transacting the business of the Council, the quorum shall only be formed when five or more States are represented; but each State shall, at all Council meetings, be entitled to two votes.

In order to provide the necessary funds for carrying on the work of the Council, the Council is empowered to levy upon the per capita basis of membership of each State Institute. Victoria has just paid the due of 2*s.* 6*d.* per member as its quota for the current year.

The objects for which the Federal Council is established are:—

1. To represent the profession in the Federal sphere.
2. To bring about uniformity in Australian practice.
3. To represent, generally, the views of the profession, to preserve and maintain its integrity and status, and to suppress dishonourable and unprofessional conduct or practice.

The operations and powers of the Council empower it to deal with:—

1. Matters of Federal interest.
2. Matters affecting two or more Institutes.
3. Any question which may be referred to the Federal Council by any Institute. The ruling of the Council shall be final and binding on the State Institutes.

The annual meeting shall be held during April or May, in such State as the Council may decide. Audited balance-sheets and an annual report shall also be presented. We understand that Adelaide is chosen for the meeting in 1916.

After framing the Constitution under which the Federal Council will work, the Council settled down to the consideration of conditions of competitions, and issued a lengthy code, showing the guiding principles to be embodied in future competitions. The aim is that there shall be clear instructions to competitors, the minimum of work in the preparation of the designs, fair and reasonable prizes, which shall not be merged into the commission of the successful competitor, together with obtaining professional advice during the adjudication. The Council agreed to print a large number of these conditions of competition, and to forward them to the Institutes. We are hopeful that these conditions will place competitions upon a much higher plane than they have frequently occupied in the by no means distant past. If the Council has accomplished nothing else, its first meeting in Melbourne will have been eminently fruitful.

Another subject dealt with by the Council was the scale of professional charges. If ever a scale of charges was based upon a wrong idea, it is the scale of fees of the architect. It surely has only existed because the man in the street understands that 5 per cent. is the customary charge, and has been since the ancient days. But how things have changed during recent years! The complexity of modern building has increased year by year, and the architect—as a man of science, to say nothing of his artistic ability—requires nowadays a very different training to that of a generation ago. Yet, for all this, he is expected to work for the commission which was considered reasonable in days of yore. Take, again, the supply of copies of drawings and specifications. Not long since the original drawings and one set of tracings on linen sufficed for most works. To-day

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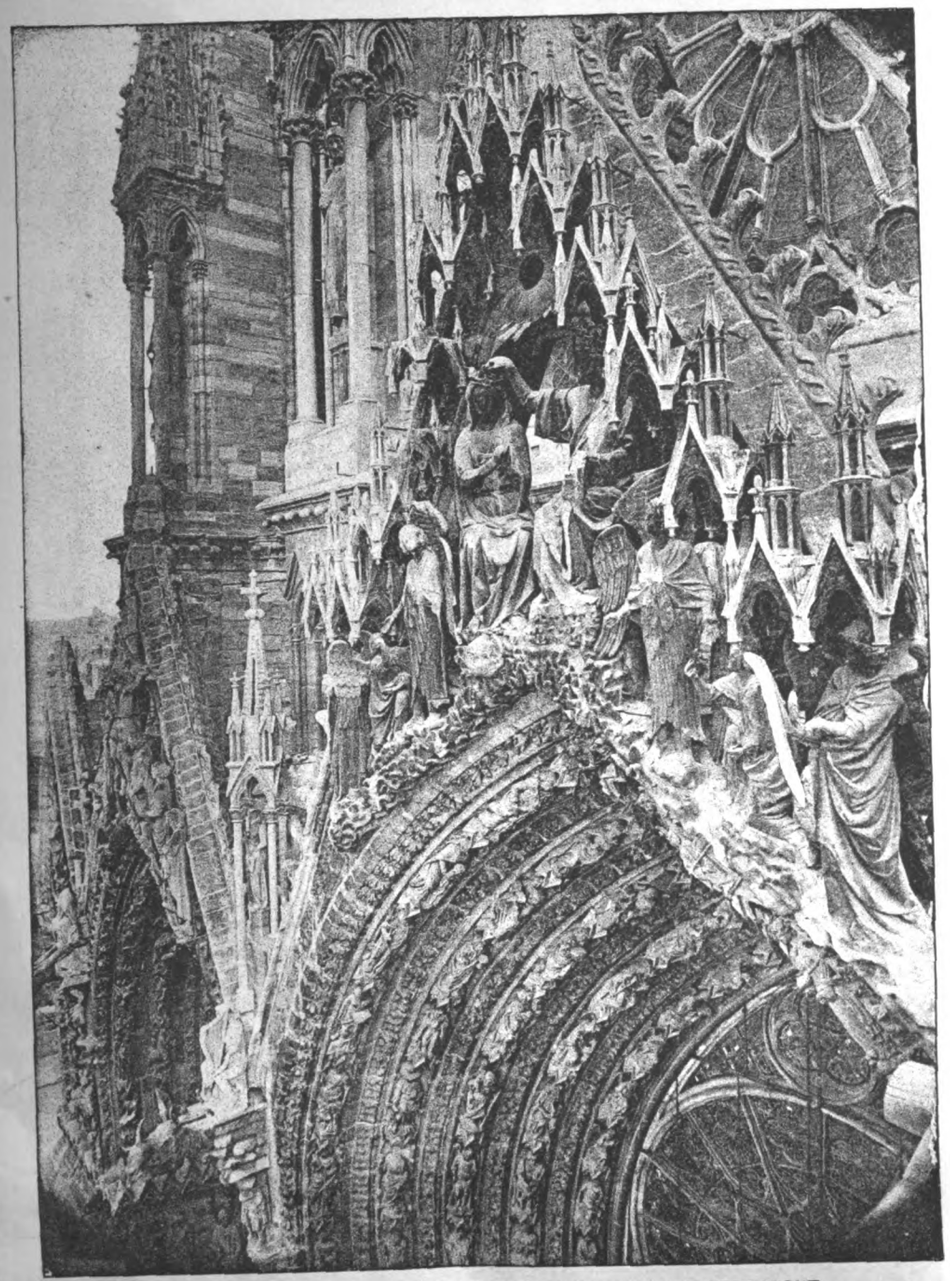
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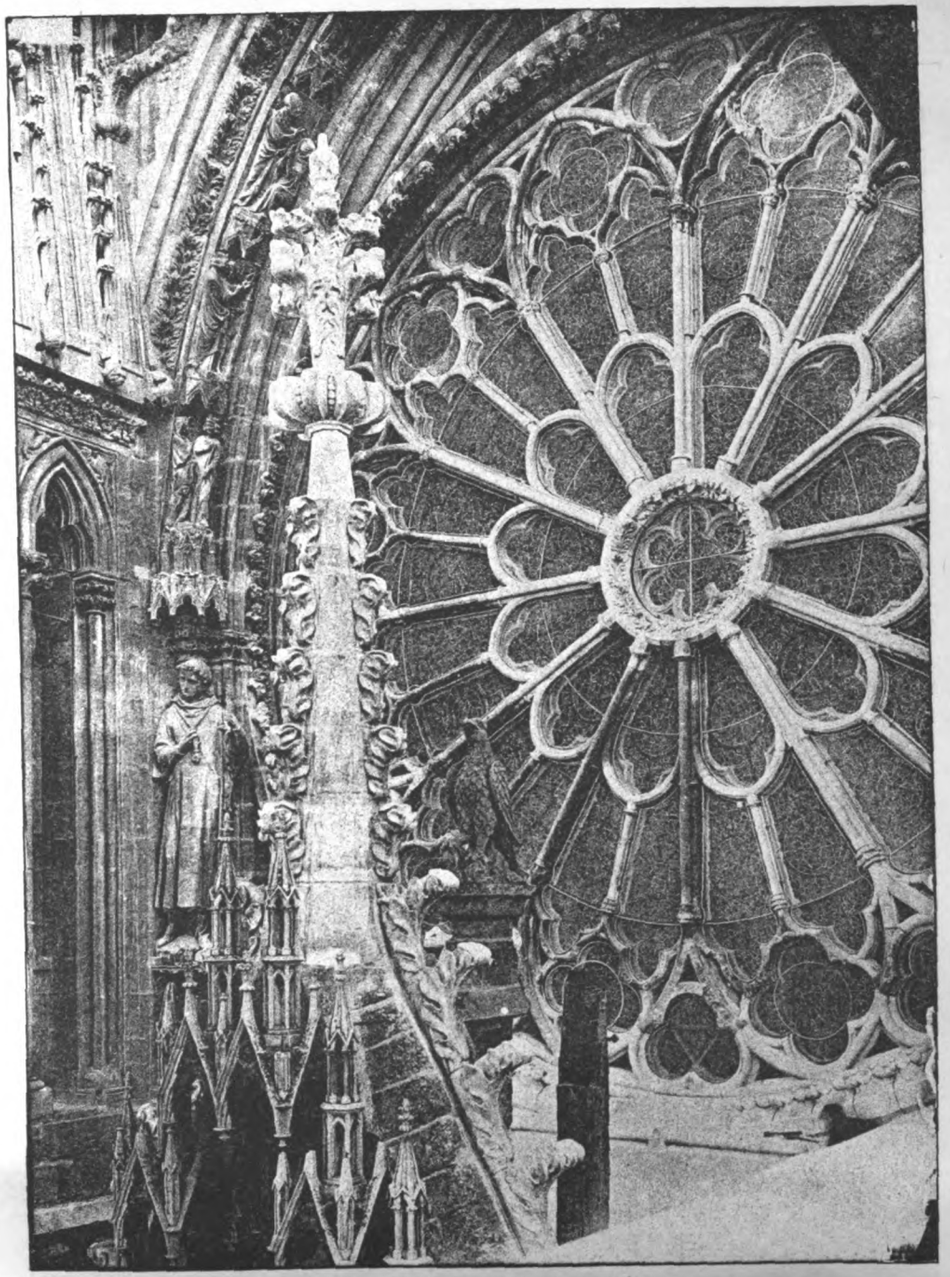
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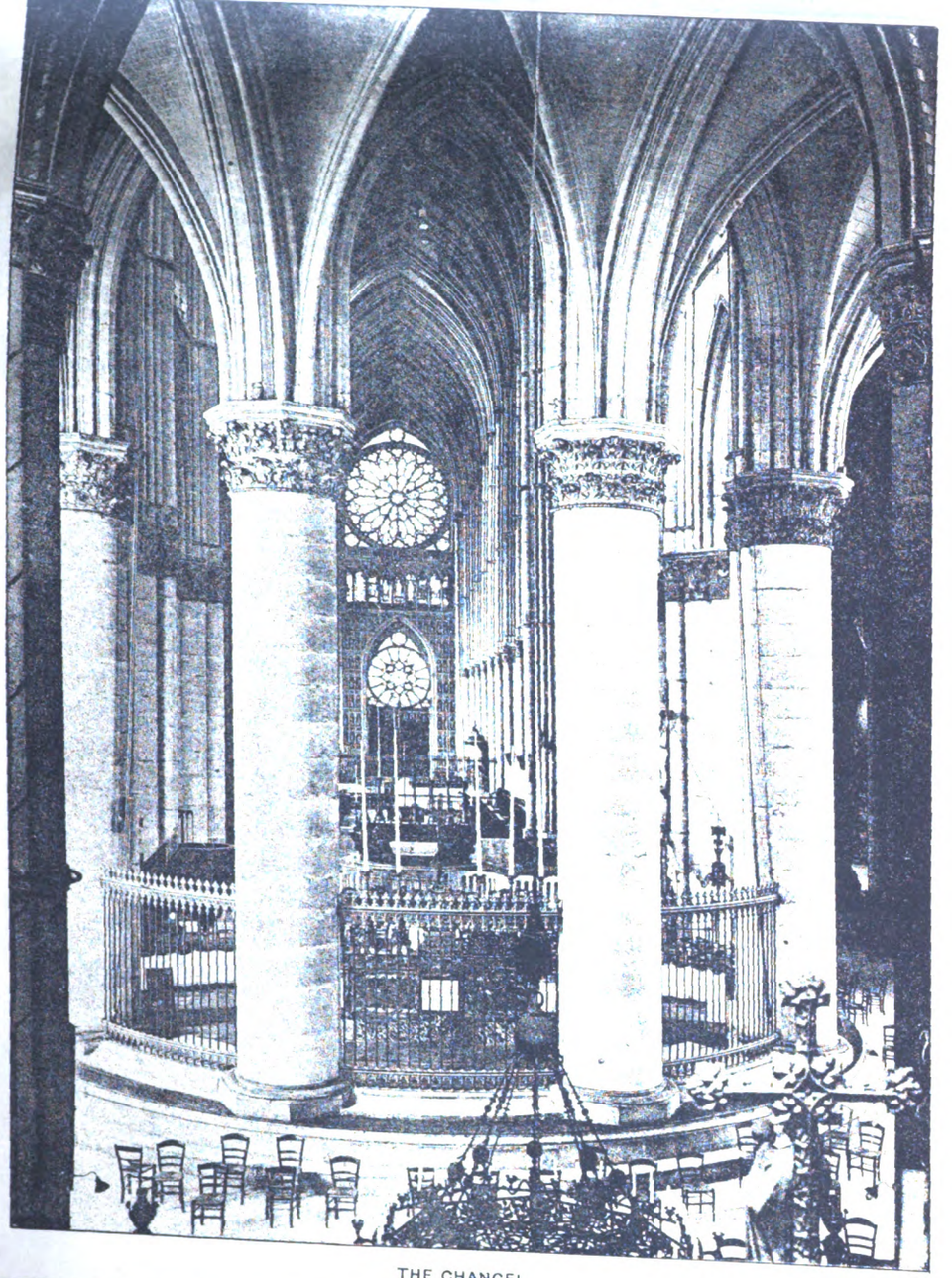
THE CORONATION OF THE VIRGIN—CENTRAL PORTAL OF THE WEST FRONT.



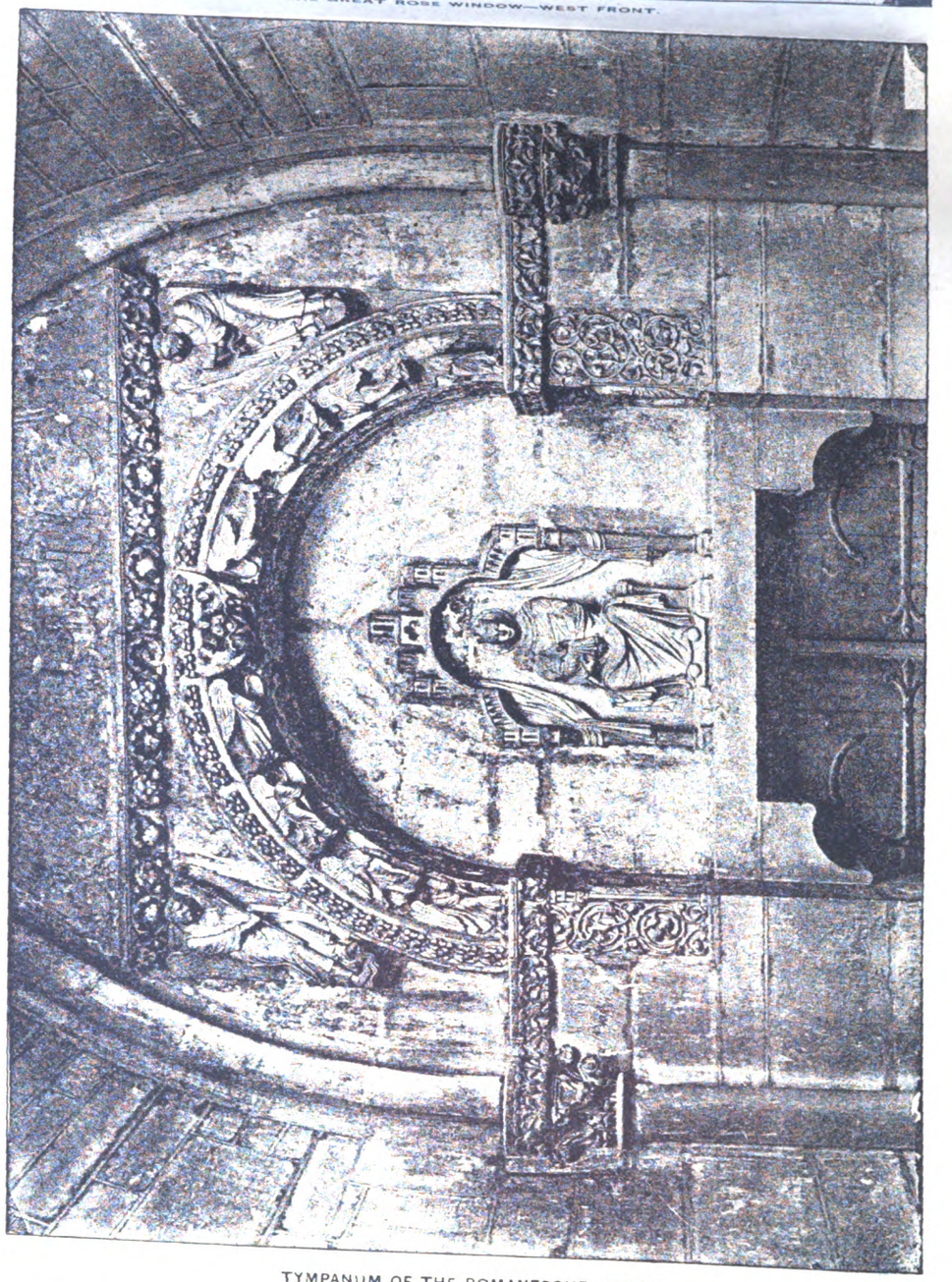
THE GREAT ROSE WINDOW—WEST FRONT.

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THE GREAT ROSE WINDOW—WEST FRONT.



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TYMPANUM OF THE ROMANESQUE PORTAL.

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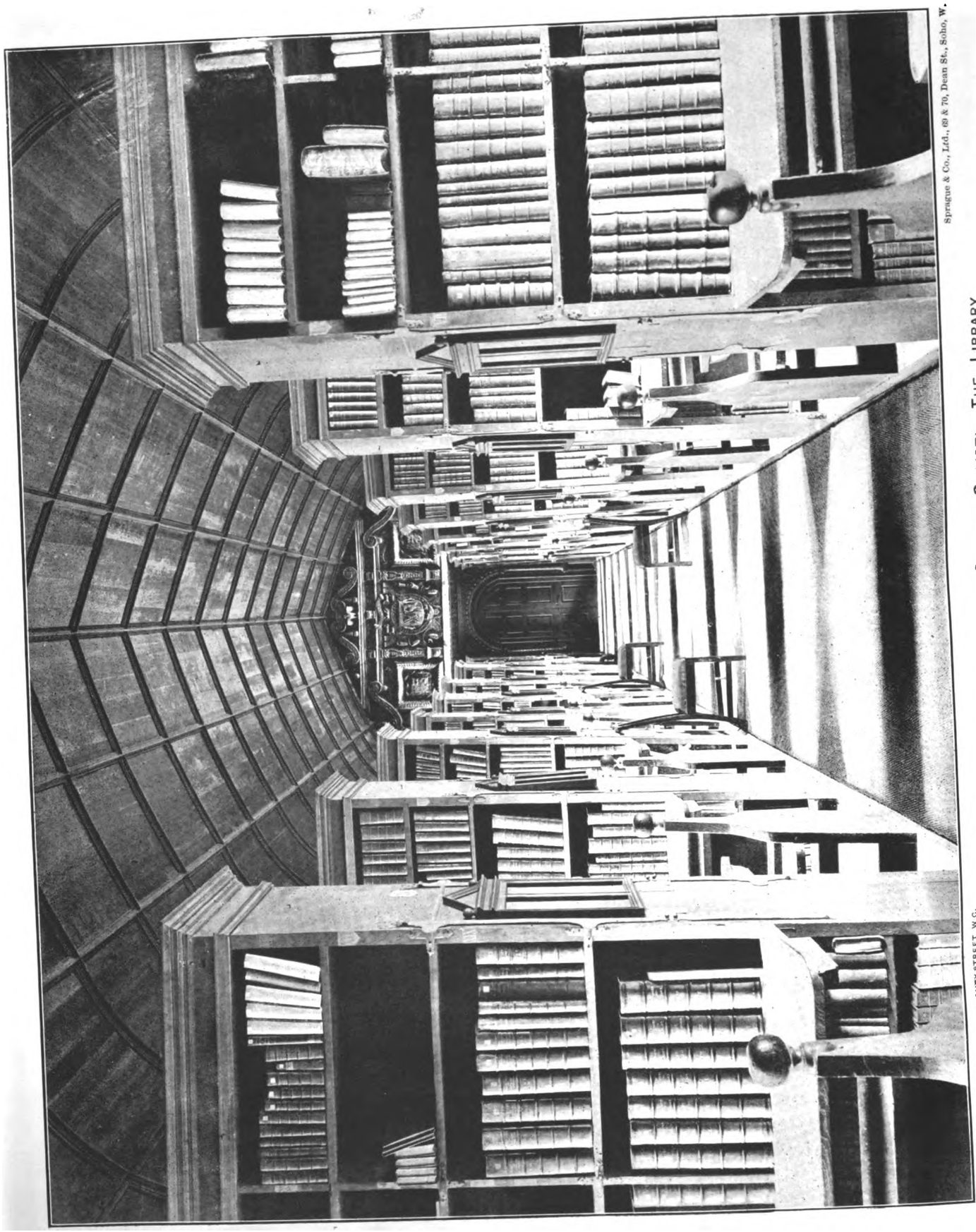
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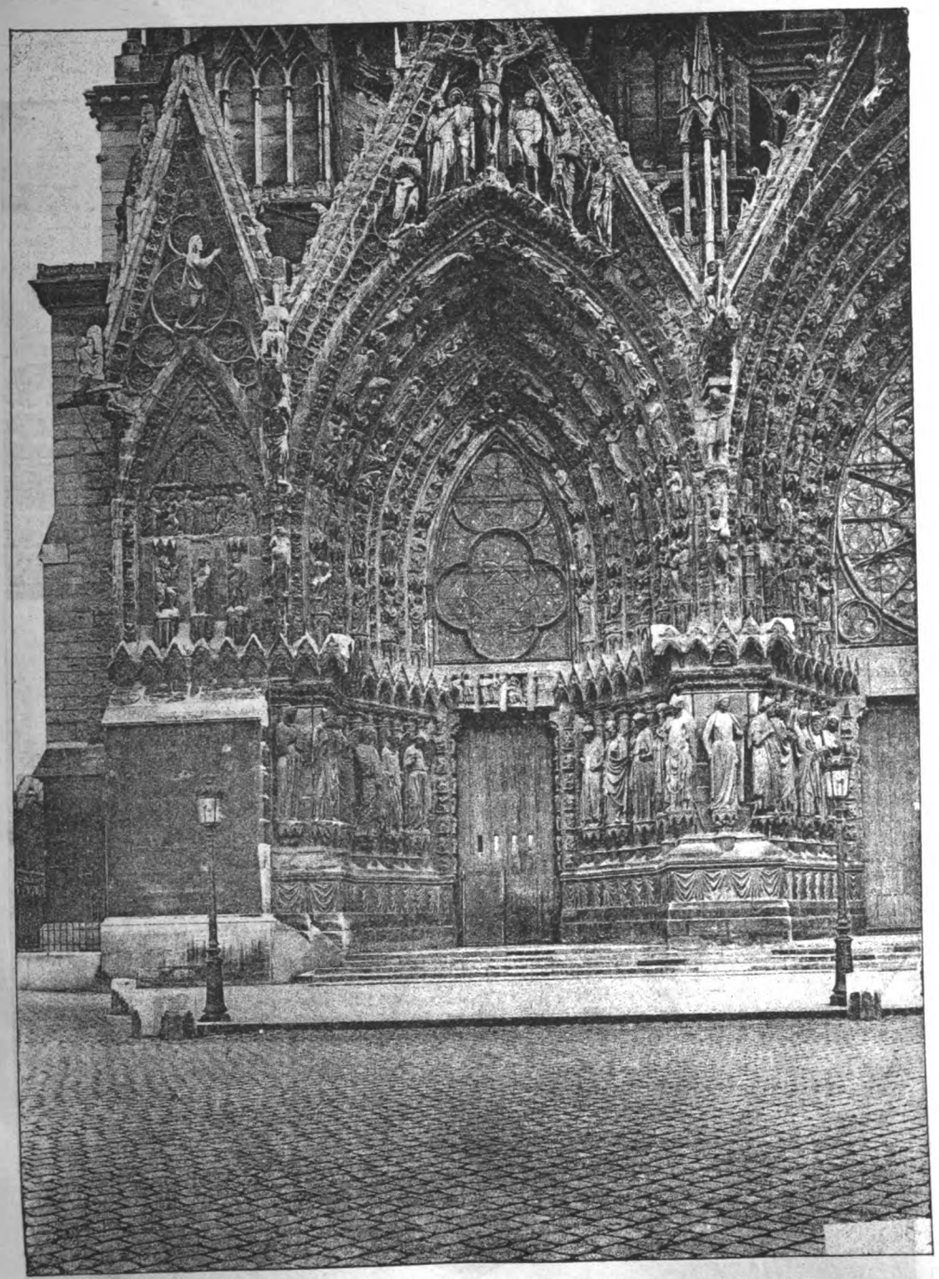
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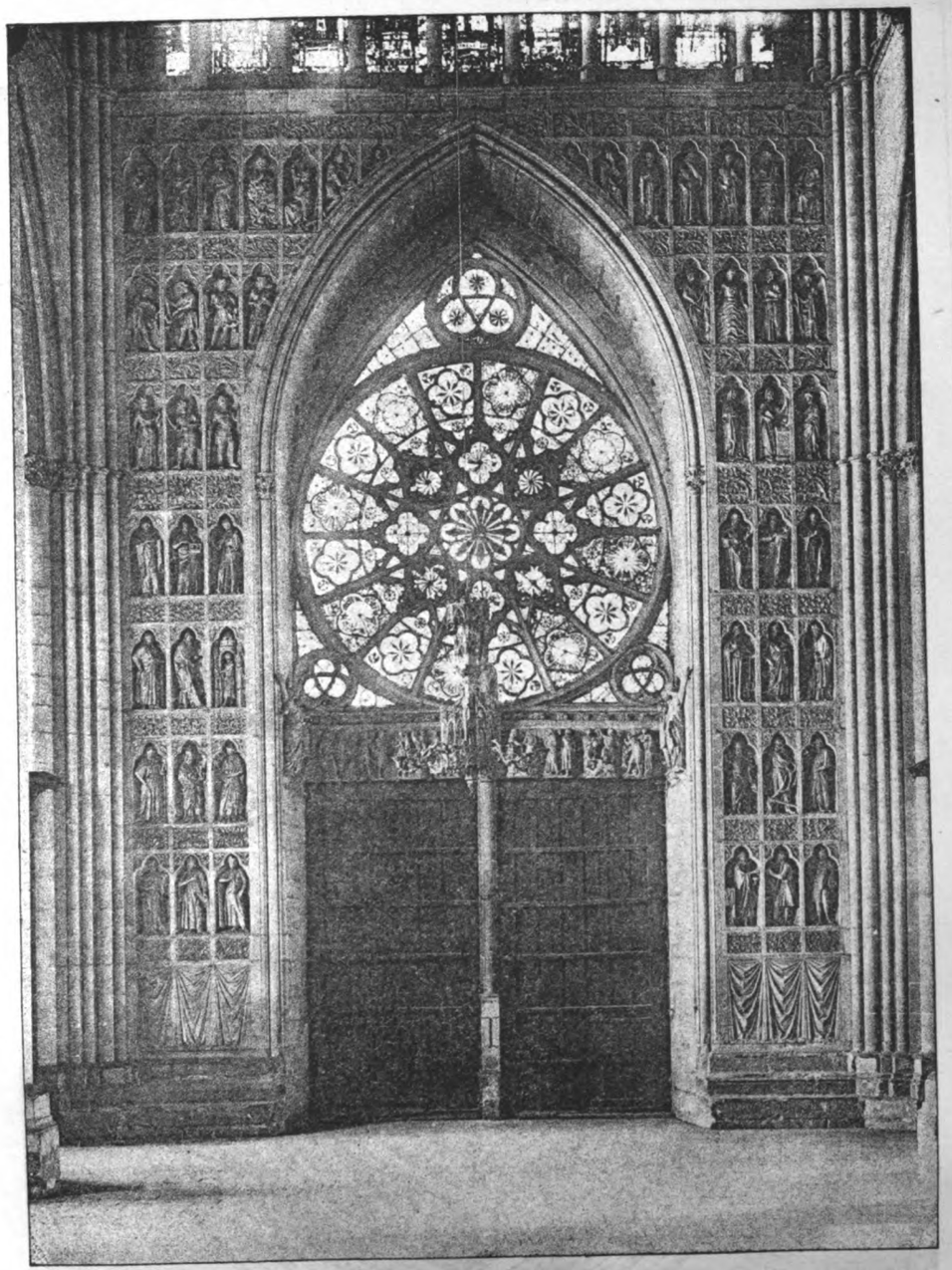
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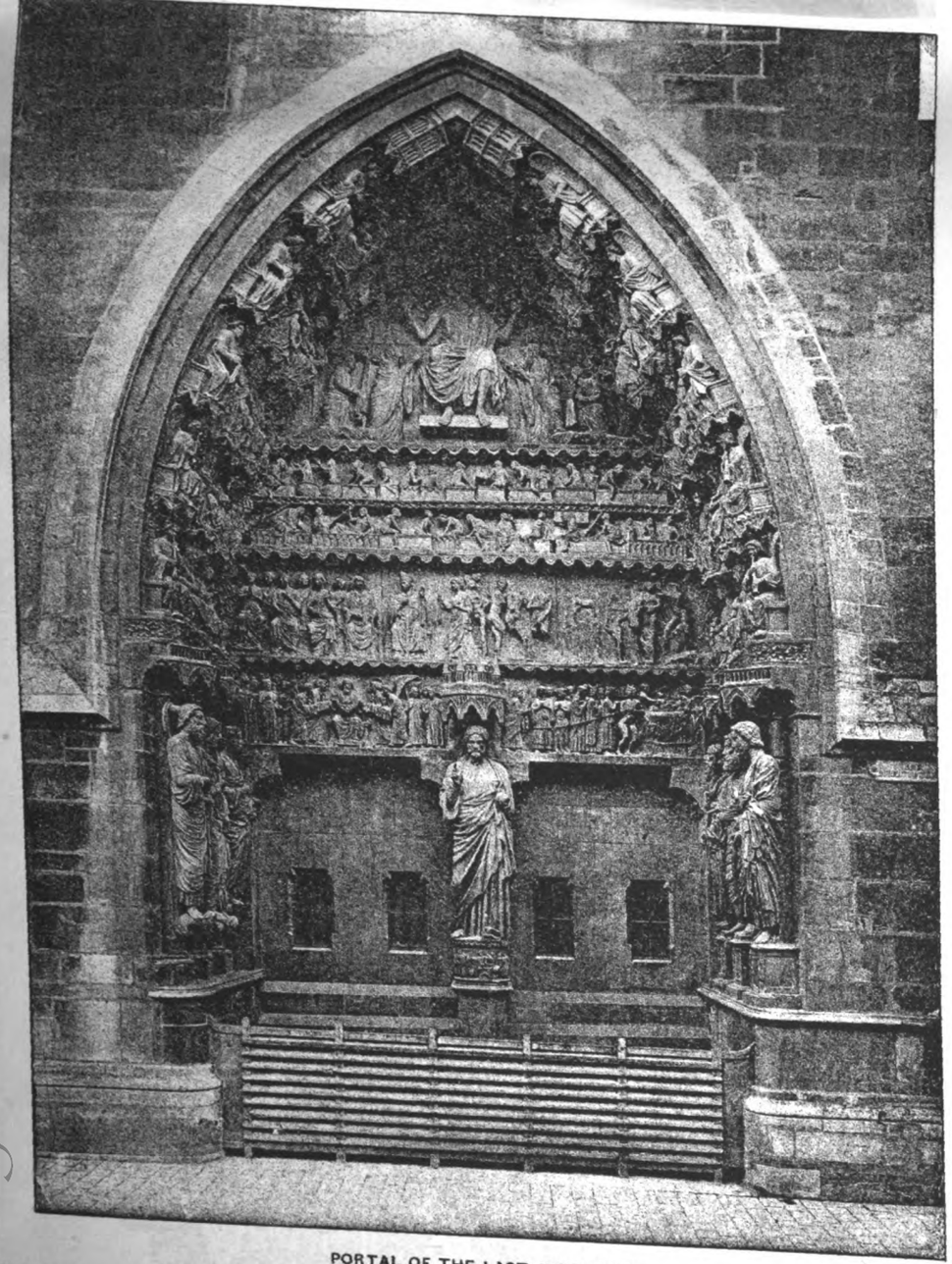
NORTH PORTAL OF THE WEST FRONT



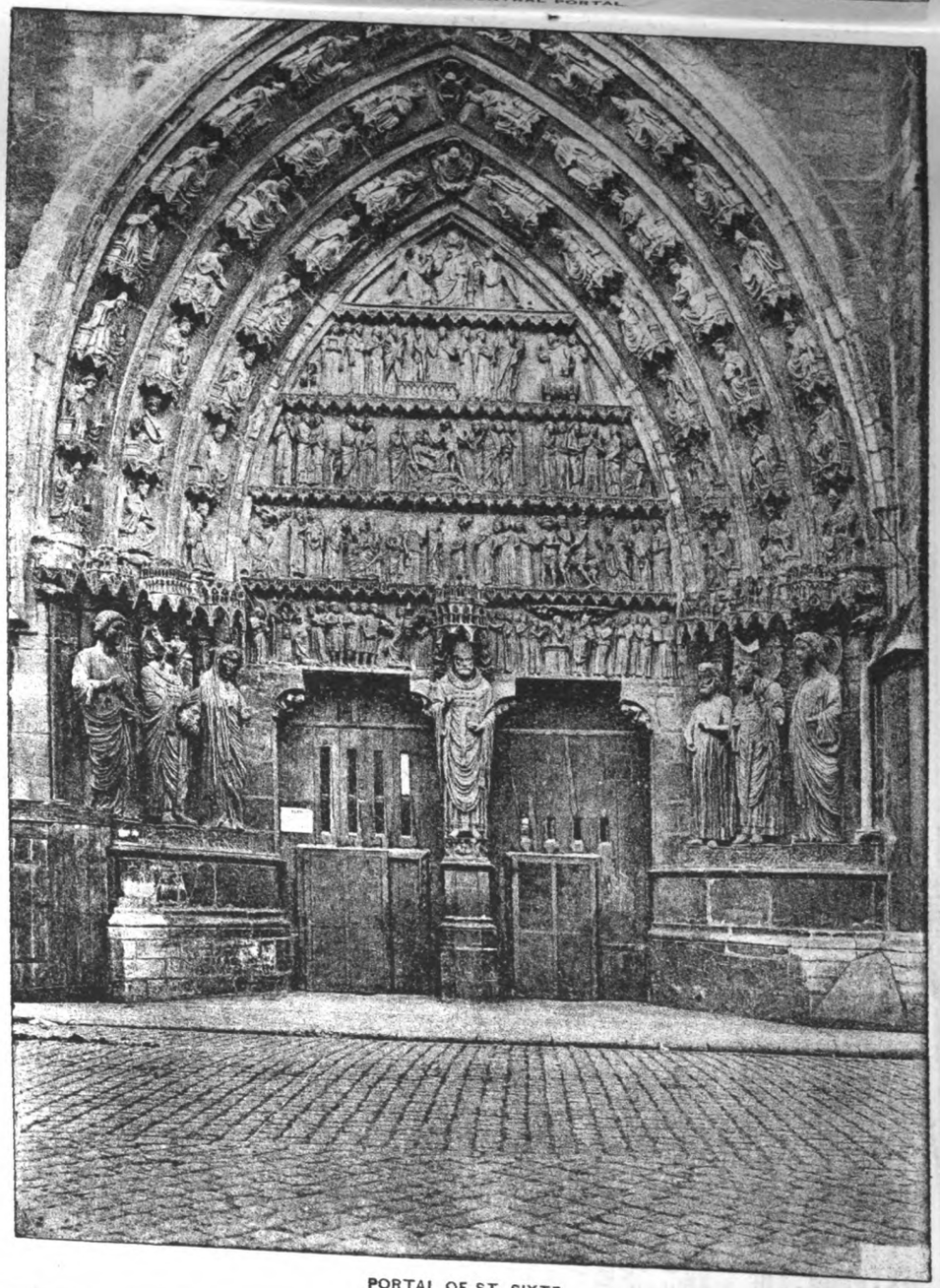
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INTERIOR OF THE CENTRAL PORTAL



PORTAL OF THE LAST JUDGMENT



PORTAL OF ST. SIXTE.

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drawings for most of the following bodies are required for every building of a public nature:—

1. The original and signed contract drawings.
2. Copies for the contractor's use on building.
3. Another set for the contractor's office.
4. Copies for use by the clerk of works.
5. Copies for the municipal authorities.
6. Copies for the Board of Health.
7. Copies for the electrical installation.
8. Copies for the Board of Works for drainage purposes.

And so on, almost *ad infinitum*. Although the processes of reproduction are features of the present day, much work has still to be done by hand (in colouring, &c.), and the old and customary charge of 1 per cent. upon the contract amount is too little for furnishing the many copies required. There are those who tell us that 5 per cent. is the standard fee of the British architect. But if anyone will refer to the "Kalendar" of the R.I.B.A., he will find a long list of items which are not included in the 5-per-cent. charge; and we know from personal knowledge that the British architect, with his 5 per cent., comes off much better than his Australian brother with his 6 per cent. The Federal Council has carefully dealt with the problems of remuneration, and, whilst laying down a model scale, has left some of the final determinations to the various State Institutes.

Other matters were dealt with, and the President and Secretary were appointed a sub-committee to draw up a syllabus for future work, to be considered by the Council.

The Council was thoroughly representative of the Australian Institutes, and was constituted as below:—

New South Wales.—A. W. Anderson (President of the Institute of Architects of New South Wales) and W. Newman.

Victoria.—H. W. Tompkins (President of the R.V.I.A.) and E. A. Bates.

Queensland.—C. W. Chambers (President Q.I.A.).

South Australia.—H. E. Fuller (President S.A.I.A.).

West Australia.—W. Kenwood (acting).

Tasmania.—A. North and J. A. B. Koch (acting).

Whilst John Little and W. M. Campbell acted as hon. secretaries to the Melbourne meetings of the Council.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Hot Water and Domestic Supply Services.

SIR,—Our attention has been drawn to an undated but apparently recently issued joint circular letter from the Institute of Plumbers, Ltd., and the United Operative Plumbers' Association, and we feel it necessary to call your attention to the following observations on the facts of the matter:—

1. The demand now being made for an absolute monopoly of the above-named class of work by plumbers is of comparative recent origin. The joint resolution annexed (No. 1) shows that in 1902 no such monopoly was then claimed by them.

Further, it was not till the year 1912 that the Operative Plumbers appropriated the term "domestic engineers" and included it in the title of their Association.

2. The work has for many years been largely done by heating and domestic engineers, who are to-day carrying on their long-established practice of employing fitters to execute it.

3. Hot-water supply is a heating problem involving principles of thermal dynamics with which heating engineers are most qualified to deal. Extended services in large institutions where steam boilers are used with calorifiers have been almost exclusively designed and carried out by heating engineers, who are the pioneers in this system of steam economy. Heating engineers are accustomed to design and carry out the work, guaranteeing efficiency, whereas plumbers usually fix work only as specified in quantities, without any responsibility beyond workmanship.

4. The fitters are specially trained for the work, and are thoroughly qualified. Apprentices and learners obtain instruction at technical classes, many employers making special arrangements to encourage and facilitate this.

5. Standardisation work for the trade has been entirely done by heating and domestic engineers in conjunction with the Engineering Standards Committee. The reports now published by the Engineering Standards Committee cover "Copper Tubes and their Screw Threads (primarily for domestic and similar work)," and also "Copper-alloy Three-piece Unions" for such work and a further report on copper-alloy fittings is now being completed and prepared for issue.

6. Annexation No. 2 gives the terms of an arbitration award by a Board of Trade arbitrator on a dispute where both sides submitted their claims. The award is in favour of the heating and domestic engineers, and is the only case which has gone before an arbitrator, as the plumbers have repeatedly refused to refer the matter to further arbitration for a general settlement.

Subsequently a joint conference was summoned by Sir George Askwith, to consider and discuss the line of demarcation between what was actually plumbers' work and the work that could be executed either by plumbers or engineers. In this the plumbers declined to take part.

7. Other operatives reject the plumbers' claims, and the following decision was given in Birmingham last month:—

"The Engineers and Allied Trades Societies' Federation, after having heard arguments as to the demarcation of work between the domestic engineers and the plumbers' societies, place it on record that the claims of the plumbers' society are not borne out by facts, and their action in refusing to work on jobs with the domestic engineers is detrimental to the best interests of trade unionism in the city; and, further, this Federation is of opinion that the offer made to the plumbers' society by the domestic engineers' society as a basis for working is fair and equitable."

The offer was: (1) Hot-water service may be executed by either plumbers or domestic engineers. (2) All heating installations shall be recognised as fitters' work, and shall be executed by fitters. (3) All cold-water supplies in any metal shall be recognised as plumbers' work, and be executed by plumbers.

8. It must be clearly understood that lead work is not in dispute, and that as regards hard metals the position of heating and domestic engineers is that the same practice shall continue as hitherto—viz., that engineers or plumbers may execute the work at the discretion of the architect or principal concerned.

9. The Institution of Heating and Ventilating Engineers confirm and endorse the views expressed above, and approve of the action we have taken.

If further information is required we shall be glad to supply it.—Yours truly,

For the National Association of Master Heating and Domestic Engineers,

ERNEST GRIFFITHS, *President.*
H. B. WATT, *Secretary.*

For the National Union of Operative Heating and Domestic Engineers,

FRANK EATON, *President.*
ROBERT SEWELL, *Secretary.*

Annexation No. 1.—Joint Resolution.

At a meeting held May 22, 1902, it was mutually resolved by the representatives of the National Association of Master Plumbers of Great Britain and Ireland and the Institution of Heating and Ventilating Engineers that in future it be observed that all lead work be considered plumbers' work, but that a neutral line be taken as regards all iron, brass, copper, or other metal work which may be executed by engineers or plumbers.

Proposed by Mr. D. M. Nesbit, London, on behalf of the Institution of Heating and Ventilating Engineers.

Seconded by Mr. J. H. Taylor, Huddersfield, on behalf of the National Association of Master Plumbers, and unanimously agreed to.

Annexation No. 2.—Arbitration Award.

Whereas the Board of Trade appointed me, Thomas Smith, of Leicester, arbitrator to hear and determine the matters in dispute between the said trades, now therefore:—

I decide that no claim has been established giving to plumbers the exclusive right to fit and fix all pipes and fittings in hard metals used in connection with ventilation, heating, warming, laundry, cooking, and general hot and cold water domestic (or other) supplies or services.

I therefore award and determine that, in the water area of the Leicester Corporation, the demarcation of work shall be as follows:—

A. "All lead work in connection with hot and cold water domestic (or other) supplies or services shall be plumbers' work."

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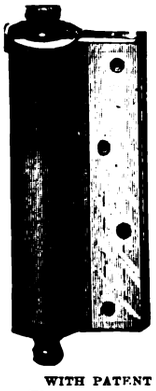
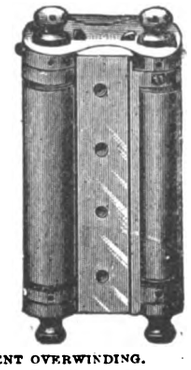
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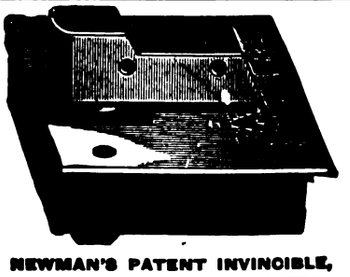



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WITH PATENT STOP TO PREVENT OVERWINDING.
The power can be instantly taken off while the Hinges are being fixed and afterwards adjusted to close the door conveniently. They cannot be overwound.
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MADE IN MALLEABLE IRON.
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Pressure is direct, but diminishes pleasantly as door is opened.
Also made with Patent Regulator to latch stubborn bolts.



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"All domestic waste, soil, or ventilating pipes above grounds from w.c.'s, baths, lavatories, sinks, or other sanitary conveniences or appliances shall be plumbers' work."

B. "All other work in connection with ventilation, heating, warming, laundry, cooking, and general hot and cold water domestic (or other) supplies or services, in which iron, brass, copper, or other similar hard metal piping is used, may be done either by hot-water heating and ventilating engineers, fitters, or by plumbers, as may be provided in plans or schemes prepared by hot-water heating and ventilating engineers, or by master plumbers, or others."

I further determine that this my award shall come into operation as and from this thirteenth day of November, 1909.

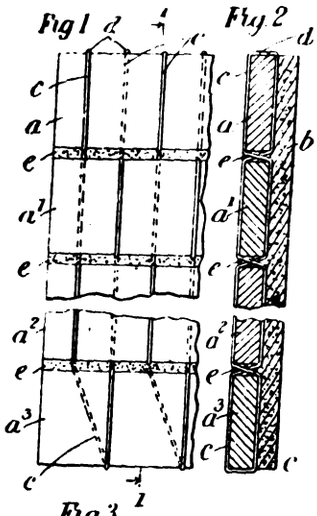
(Signed) THOMAS SMITH,
Arbitrator.

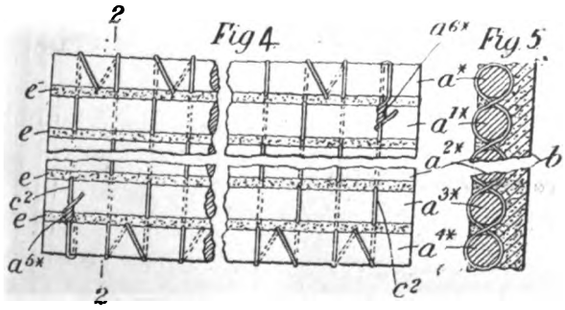
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 15,258. June 25, 1914.—A New or Improved Lattice-like Framework of Laths or the like, more especially intended for use in the Construction of Slabs, Ceilings, Walls, or Partitions. G. A. Herdman, 2 Coatham Villas, Coatham, Redcar.—This invention relates to an improved lattice framework of that type wherein lengths of cane, wood, or the like are bound together by wire, and has for its object to obtain an improved structure of this class for the construction of slabs, ceilings, walls, or partitions especially useful in cold-storage insulation. The object of the invention is to provide an improved base for plaster or cement which may be used in the construction of slabs, or as a substitute





for laths or slats as ordinarily employed in the construction of buildings, and which will afford a better key for the plaster and greater rigidity, but the invention is also useful for other purposes. Fig. 1 is a rear elevation of a lattice-like framework. Fig. 2 is a transverse section taken on the line 1—1 of fig. 1. Fig. 3 is a plan or edge view of fig. 1. Fig. 4 is a rear elevation of a modification. Fig. 5 is a transverse section taken on the line 2—2 of fig. 4. Referring to figs. 1 to 3 of the drawings, a, a^1, a^2, and a^3 represent the laths or slats, which may be of wood, metal, or other suitable material, and b represents the plaster or cement. The laths or slats a, a^1, a^2, and a^3 are woven or secured together by means of a number of short lengths of wire c, so as to form a lattice-like framework, which constitutes a base for the plaster or cement b. Or yarn, cord, or the like may be employed for the same purpose. The laths or slats a, a^1, a^2, and a^3, which constitute the weft or cross pieces of the framework are interwoven with the strands c of wire, one strand c of the warp being passed over the first lath or slat a, under the lath or slat a^1, over the lath or slat a^2, and under the lath or slat a^3, and to return said strand c of the warp in a different vertical plane over the lath or slat a^3, under the lath a^2, over the lath a^1, and under the lath or slat a. Additional strands c of the warp are interwoven in the same manner as the first strand c at suitable intervals throughout the entire framework. The ends may be merely turned, hooked or cranked over the edge of one of the laths or slats as shown at d. The laths or slats a, a^1, a^2, and a^3 are necessarily so spaced and secured together by the strand or strands of the warp that spaces e are provided between adjacent laths or slats to serve as keys for the plaster or cement in the well-known manner. In figs. 4 and 5, in lieu of employing the laths or slats a, a^1, a^2, and a^3, as the weft or cross pieces as before described, rods a^*, a^{1*}, a^{2*}, a^{3*}, a^{4*}, such as hazel rods or cane, are substituted therefor.—June 30, 1915.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 24,711. Oct. 30, 1913.—Dated under International Convention Oct. 30, 1912. Karl Edison, 125 East 23rd Street, New York, U.S.A. Illuminating device.

25,378. Nov. 6, 1913.—Gustav Fichsel and Gunther Hoffmann, Stadtilm, Germany. Apparatus for applying plastic material to surfaces or objects to ornament same.

27,574. Dec. 1, 1913.—H. M. Archibald, 745 St. Andrew's Avenue, North Vancouver, B.C. Means for constructing walls and blocks therefor.

29,755. Dec. 24, 1913.—Thomas Duff & Bros.' Proprietary, Ltd., Swanston Street, North Melbourne, Australia. Door hinges.

7,919. March 28, 1914.—A. A. Pauly, 935 Poland Avenue, Youngstown, Mahoning, Ohio, U.S.A. Pipes, tiles, building blocks, and the like.

8,645. April 6, 1914.—Dated under International Convention Nov. 14, 1913. Arthur Aaker, 80 rue Taitbout, Paris. Apparatus for treating mortar materials with steam or moist hot air.

11,078. June 23, 1914.—A. E. Wheeler and H. W. Gould, 12 Theobalds Road, W.C. Circulating systems of heating.

1,146. Jan. 23, 1914. Dated under International Convention Feb. 6, 1914. Soc. Puech, Chabal et Cie., 34 rue Ampere, Paris. Treatment of sewage and other residual waters and apparatus therefor.

1,147. Jan. 25, 1915.—Leo G. Mullen, 1,222 Fulton Buildings, Pittsburgh, Allegheny, Penn., U.S.A. Glass paving blocks.

5,866. April 19, 1915.—Dated under International Convention June 15, 1914. Firm Robert Bosch, Stuttgart, Militarstr. 4-8, Germany. Lanterns for elctric lamps.

6,782. May 6, 1915.—S. R. Parkes, Pretoria Works, New Road, Willenhall. Locking means for pivoted latches.

23,205. Nov. 28, 1914.—W. H. Tonks and Walter Sparks, 201 Moseley Street, Birmingham. Door knobs.

14,013. June 10, 1914.—Edmund Eaton, 115-17 Cannon Street, E.C. Composite fuel briquettes for heating and production of cement, clinker, or ash.

19,570. Sept. 9, 1914.—Joseph Breeden & Co., Ltd., F. V. Breeden, New Mill Works, Fazeley Street, Birmingham. Valves for heat radiators and the like.

16,193. July 7, 1914.—C. H. Mason, 10 Berkeley Street, Saint John's Gate, Clerkenwell, E.C., and the British Saw Sharpening Machines, Ltd., 79 Mark Lane, E.C. Saw-sharpening machines.

13,890. June 9, 1914.—C. J. Rhodes, Grove Iron Works, Wakefield, Yorks, and T. H. Webb, 11 St. John's Villas, Wakefield, Yorks. Machine for searing metal or other sheets.

18,262. Aug. 7, 1914.—Henry Crowther, Hope Works, 19 Selbourne Street, Walsall. Casement fasteners and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

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(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Bellingdon.—Houses, for Mr. E. N. Ashford.

CHESHIRE.

Winsford.—Blakeden Farm: buildings, for Mr. R. N. H. Verdin.
Granary, off High Street, for Mr. W. Hallmark.
The Albert Infirmary: additions.

CORNWALL.

Treskillard.—Three bungalows, for Mr. Nile.

CUMBERLAND.

Crosby-on-Eden.—Stables, &c., Batt House, for Mr. T. H. Hodgson (of Newby Grange).
Rockcliffe.—Farm, Heathlands: additional buildings, for Mrs. Mounsey-Heysham.
Wetheral Shields.—Gardener's cottage. Mr. W. C. Boyd, architect, 50 Wellington Street, Glasgow.

DERBYSHIRE.

Calow.—House. Mr. T. S. Wilcockson, architect, Knifesmith Gate, Chesterfield.

DURHAM.

Fishburn.—Picture House. Mr. J. W. Hays, architect, North Road, Wingate.

ESSEX.

Ilford.—No. 84 Stanley Road: bakehouse. Mr. F. H. Jones, architect, Parliament Mansions, Victoria Street, London.
Banking premises, No. 144 High Road. Messrs. Bullock & Moore, R.I.B.A., architects, 3 Raymond's Buildings, Gray's Inn, London.
Five houses, Beehive Lane, for Mr. P. E. Brand.

HAMPSHIRE.

Portsmouth.—Business premises, King's Road, Southsea. Mr. C. W. Bevis, F.R.I.B.A., architect, Elm Grove Chambers, Yarborough Road, Southsea.

KENT.

Rochester.—Ten cottages, Fort Clarence, Borstal Road, for Mr. C. T. Smith.
Fifty cottages, Frindsbury, for Strood R.D.C.
Strood Vicarage: additions, for the Ecclesiastical Commissioners.

LANCASHIRE.

Manchester.—Electricity generating station, Barton (£424,250).
Factory, New Quay Street, for Messrs. Pilkington (of St. Helens).
Rishton.—Two houses, Blackburn Road North. Messrs. R. & J. R. Butler, builders, Spring Street.
Todmorden.—R.C. Church, West Lodge estate.
Warrington.—Proposed smallpox hospital (£1,500).

NORFOLK.

Martham.—The "King's Arms" p.h.: additions, for Messrs. Lacon & Co.

SHROPSHIRE.

Maesbury.—Council school, Oswestry Road.
Wem.—Council school, Barnard Street.
Weston Rhyn.—Council school.

SURREY.

Guildford.—Forty-two Council cottages, Woking and Old Farm Roads (£10,500).
Haslemere.—Voluntary school, Shottersmill.
Mortlake.—Five houses, Observatory Road, for Mr. G. A. Gale.

WARWICKSHIRE.

Coventry. — Electricity Works: proposed extensions (£91,500).
Mission church, Stratford Street, Upper Stoke. Mr. T. F. Tickner, F.R.I.B.A., architect, High Street Chambers. Messrs. T. Hickman & Sons, contractors (£700).
Two houses, Crescent Avenue, Stoke, for Mr. E. K. Purnell.
House, Broadway. Mr. W. H. Penn, builder, Albany Road.
Six houses, Bray's Lane, for Mr. N. Moss.
House, Clay Lane, for Mr. H. J. Emery.
Foleshill.—"Foleshill Hall" Hotel, Lythall's Lane, for Messrs. Phillips & Marriott, Ltd.
Four houses, Elmsdale Avenue, for Mr. E. K. Purnell.
House, Black Horse Road, for Mr. F. Bricknell.
Nuneaton.—Factory. Mr. H. Quick, architect, 35 Hertford Street, Coventry.
Two houses, Oaston Road, for Mr. G. Orton.
Three houses, Friary Street, for Mr. G. Aldridge.
House, Princes Street, for Mr. E. Moreton.
Stratford-on-Avon.—Hospital: extensions. Messrs. Osborn, Pemberton & White, architects, 20A Henley Street (and at Birmingham).

WORCESTERSHIRE.

Great and Little Hampton.—Public elementary school, for one hundred places.

YORKSHIRE.

Barkisland.—Chapel Field Mills: additions and alterations. Messrs. R. Horsfall & Son, architects, 22A Commercial Street, Halifax.
Barnoldswick.—Conversion of building in Manchester Road into a Sunday school for 500 places (£1,600).
Carleton.—Four houses, for Mr. F. Briggs.
House, Park Avenue, for Mr. W. Wood.
East Layton.—Council school for forty places, for N.R. Education Committee.
Elland.—Works, Rose Mount: extension, for Messrs. R. Dempster & Sons, Ltd.
Harrogate.—No. 11 Cambridge Crescent: alterations, for Mr. R. Peach.
House, The Grove, for Miss A. Wheater.
Hipswell.—Cinematograph Hall, for Mrs. D'Arcy Hildyard.
Huddersfield.—St. Patrick's R.C. School.
Scarborough.—Workmen's dwellings, Seamer.
Wakefield.—Wesleyan School, Belle Vue.
Worsborough.—Worsborough Dale Working Men's Club: additions.
Two houses, Bank End Road. Mr. G. Porter, builder.

WALES.

Swansea.—Smallpox and isolation hospitals, Cwmllwyd Farm (£50,000). Borough architect.

SCOTLAND.

Buckie.—Co-operative Society Stores, East Church Street: bakery extension.
Coatbridge.—Union Tube Works, Whifflet: extension, for the Scottish Tube Company, Ltd. (£2.000).
Dundee.—House, King Street, Broughty Ferry: addition, for Mr. Robert Cook.
Edinburgh.—Electric generating station, Westbank, Portobello. Mr. J. A. Williamson, A.R.I.B.A., City architect, Public Works Offices, City Chambers.
Giffnock.—Motor garage, Maryville Avenue, for Mr. W. Anderson (of Newton Mearns).
Glasgow.—Building, Sandfield Street, Maryhill, for the Leyland and Birmingham Rubber Company.
Two tenements of houses and shops, Gallowgate and Charlotte Street, for the Corporation.
Picture House, New Bridge Street and Dumbarton Road, for Mr. W. B. O. M'Dougall.
Public school, Maryhill: addition, for the School Board.
Works, Crownpoint Road: buildings, for Messrs. A. Knox & Sons.
Greenock.—144 workmen's dwellings (£25,800).
Irvine.—Bourtreehill House: alterations, for Mr. R. Kermeth (of Dreghorn).
Lochgelly.—Parish Church: alteration and extension. Mr. P. M. Chalmers, architect, 95 Bath Street (£3,500). Separate trade contractors.
Paisley.—Engine house, Chain Road, for Mr. W. Peacock (of Elderslie).
No. 1 Clark Street: alterations and additions, for Messrs. G. Dobie & Son.
Stonehaven.—Two cottages, Victoria Street. Messrs. D. & J. R. M'Millan, architects, 105 Crown Street.

IRELAND.

Dublin.—Convent and sanatorium, Kill o' the Grange. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street.
Killucan.—Stables, &c., Grangefore. Mr. P. J. O'Loughlin, architect, Railway House, Mullingar.

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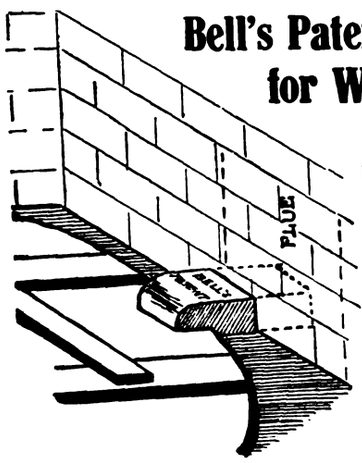
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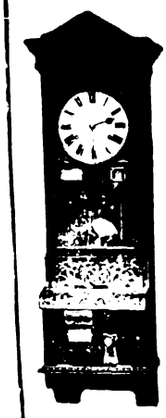
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THE ARCHITECT

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STUDENTS' WORKS AT THE ROYAL COLLEGE OF ART.

Like most other institutions providing secondary or advanced education, the Royal College of Art has suffered from the war, and naturally some of the older and most capable students have been called away from the study of art to the study of war. A striking instance of this is evidenced by the proud display on behalf of the School of Architecture of a work of one of its students, a quite satisfactory design for the internal decoration of a domed church by Corporal T. H. Jenken, of the London Rifle Brigade. The drawing is crowned by a trophy of flags, laurel leaves, and a German helmet to express the honour felt to be due to Corporal Jenken for a daring deed described in a newspaper cutting displayed beneath it, which tells how the artist-architect-corporal made a night foray on a German trench and carried off single-handed a German flag whose vaunting display had irritated the Brigade. From a strictly military point of view, the deed of derring-do merited, perhaps, ten days' C.B. *C'est magnifique, mais ce n'est pas la guerre.* But one can but feel that the Royal College of Art in general, and the School of Architecture in particular, have just cause to be proud of their former student.

The show by the School of Architecture is therefore very much smaller than usual, but we are glad to say that as regards quality it is very much better than usual. The preliminary studies made by students of the Lower School are all good, good in selection of subject, good in draughtsmanship, just what studies of architecture should be, well drawn and expressive without being over-elaborated in technique. English mediæval masonry of the thirteenth and fourteenth centuries from Lichfield, Southwell, and Lincoln is illustrated by the work of Archie M. Fletcher, who also has exhibited some of his studies of the development of woodwork—English and French—from Mediæval to late renaissance, in which he is joined by H. St. John Harrison, a former worker in "The Architect" Students' Sketching and Measuring Club and holder of our Travelling Studentship in 1913. Renaissance sculpture is illustrated by drawings of Gwendolen Rose and studies of Greek work from the British Museum by those of F. V. Ellis.

In the exhibition of designs by students specialising in the School of Architecture we are pleased to note a striking sense of freshness and originality; originality that is far removed from eccentricity or the invention of bizarre motifs remarkable only for their avoidance of all precedent, and a freshness in the virile employment of ancient architectural language to express new thought clad in new form. There may be on occasion something of crudity in the form-expression, but virility that is crude is preferable to suavity that is tame or eccentricity that is bizarre.

Several of the designs have been prepared for a specific purpose, either for R.I.B.A. Testimonies of Study for the Final Examination, or, as with J. Scott Lawson's design for a memorial chapel, which appears to have been submitted for a British Institution Architectural Scholarship. We are nowadays getting away from the old style when designs in competition for the Royal Institute travelling studentships, and even the Royal Academy gold medal, were prepared by students in their own home on their lonesome. Now we are approaching the Parisian practice wherein competitive drawings, other than those *en loge*, are made in a school with the advice and even the assistance of masters and fellow-students. Mr. Lawson's memorial chapel is a domed building on a Greek cross plan of which one arm ends in an apse. Assuming that the perspective is correctly set up, and it appears so at a glance, the student is to be congratulated on designing his dome to a curvature that looks exaggerated in elevation but is satisfactory when foreshortened, thus avoiding a fault to which novices at dome design are prone, and which is usually followed even in actual buildings, by too great an allowance for the flattening that actuality brings. We have some examples of this in recently erected London domes. Mr. Lawson appears to have successfully steered between Scylla and Charybdis. The interior is a good example of the South Kensington study of colour decoration as part of the architectural design of a building.

The R.I.B.A. is responsible for four designs for a memorial to Lord Roberts. In Mr. Lawson's the hexagonal central feature, a compromise between a truncated obelisk and a strongly battered tower with a domed top, is somewhat small in size for the well-designed but over-important base. W. J. Knight's design is of more regular Italian type, whilst H. St. John Harrison's is also Italian as understood by Alfred Stevens; a three-storeyed conception. G. C. Styles has produced a good design, particularly well drawn in its sculpture.

Designs for an organ case, another R.I.B.A. subject by Mr. Lawson and Mr. Knight, both show originality of treatment, but are somewhat involved and confusing in plan and composition. We fancy the organ builders who had to put an instrument into the cases would have an anxious, not to say exasperating, time, particularly with Mr. Knight's circular plan. We do not quite understand the author's idea of the organ's situation; it appears to pierce the end wall of the building at the end of which it stands.

A National Art Library is the subject for which there are the greatest number of designs, as the specialists in the School of Design and the School of Sculpture have attempted it, as well as the students in the School of Architecture. It is interesting to note the marked difference in character between the architectural design of young architects and that of young sculptors and designers. The former, as we have said, shows virility and originality; the latter is either, as is J. C. Taylor's design, the scholarly-correct but uninspired version of Italian or Roman precedent that a German professor of the academic type would produce, or a confused collection of classical and renaissance motifs, that speaks bad grammar.

If the modern exponent of the doctrine that "there is but one art" is to be found in modern building, it would appear that, at any rate as far as the Royal College of Art is concerned, it will be amongst the students specialising in the School of Architecture that the all-round artist who can design satisfactorily the union of architecture, sculpture and painting will arise. The internal colour treatment and the sculpture shown on the drawings of the architect students is often not only equal but superior to that of the students who are specialising in the Schools of Sculpture and Design. These latter fail to grasp the meaning of architecture sufficiently to enable them to design either a fitting frame

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to their own work, or to satisfactorily fill a frame of another artist's make.

The specialists in the School of Design are, in our opinion, not even successful in their own metier. Their colour schemes are too often vitiated by over-insistent borders of strongly contrasting tint and tone, there is an incongruous mixture of historical motif and an unpleasant confusion of scale in ornament. Bad proportion in architecture and bad drawing of figure and foliage are far too common faults and show either carelessness or inadequate preliminary training.

When we pass into the room and corridor occupied by the work of the School of Painting and Mural Decoration we are not surprised at our experience in the attempts of these specialists to combine their work with architecture. Although some of the studies in painting from life are, though not elaborately finished and worked up, yet sufficiently competent in drawing and expression, the students seem to think that as soon as they start on decoration that drawing and modelling are best left out of consideration, and that to be decorative it is imperative for painting to become as much like wood-block colour printing as possible. Whilst it is quite right to make a distinction in treatment and a marked distinction between an easel picture and a decorative wall painting, it seems to us to be pure affectation to go the length of the "Giving" panel by J. C. Midgley or the "War" panel by J. G. Rennie.

The room occupied by the School of Sculpture and Modelling is usually a pleasure to visit and this year certainly not less than usual, whether we regard the figure-studies from life, the modelled designs for panels, or the specimens of carving in marble. But a good sculptor evidently does not necessarily make a good architect.

Equally is it a pleasure to inspect the examples of work done in the School of Etching and Engraving, but as there is no description in the catalogue and there are very few names or titles on the walls, it is not easy to particularise.

NOTES AND COMMENTS.

The annual meeting of the Bristol and Gloucestershire Archæological Society was held recently at the Guildhall, Gloucester, the President (Mr. C. E. Keyser, M.A., F.S.A.) being in the chair. The report made the following reference to Deerhurst Church, near Tewkesbury: "In September last the vicar and churchwardens of Deerhurst Church obtained a faculty authorising the rebuilding of the apse and the consequent alteration of the sixteenth-century pews on the north, east, and south sides of the communion table. In view of the fact that the church is one of the very few left in which this arrangement of pews has been allowed to remain, strong protests were raised by members of the society and others against the proposed alterations. On March 3 of this year a deputation from the Society of Antiquaries of London, in conjunction with a deputation from this society, visited the church. The visitors came to the conclusion that, from an antiquarian point of view, it was undesirable to proceed with the project."

It is in such matters as the above that the real value of local archæological bodies lies, for though a good proportion of the members may be unable to show any deep knowledge, yet they do represent a spirit of watchful enthusiasm, which is still very necessary if our antiquities are all to be safeguarded. In old churches, for example, there is a very common inclination to resent the existence of features which seem to detract from the general unity or general beauty. The value of such features as irreplaceable records of a chequered past are overlooked, though not as often as they were in the middle of last century, when so much damage was done to our ecclesiastical buildings, both great and small.

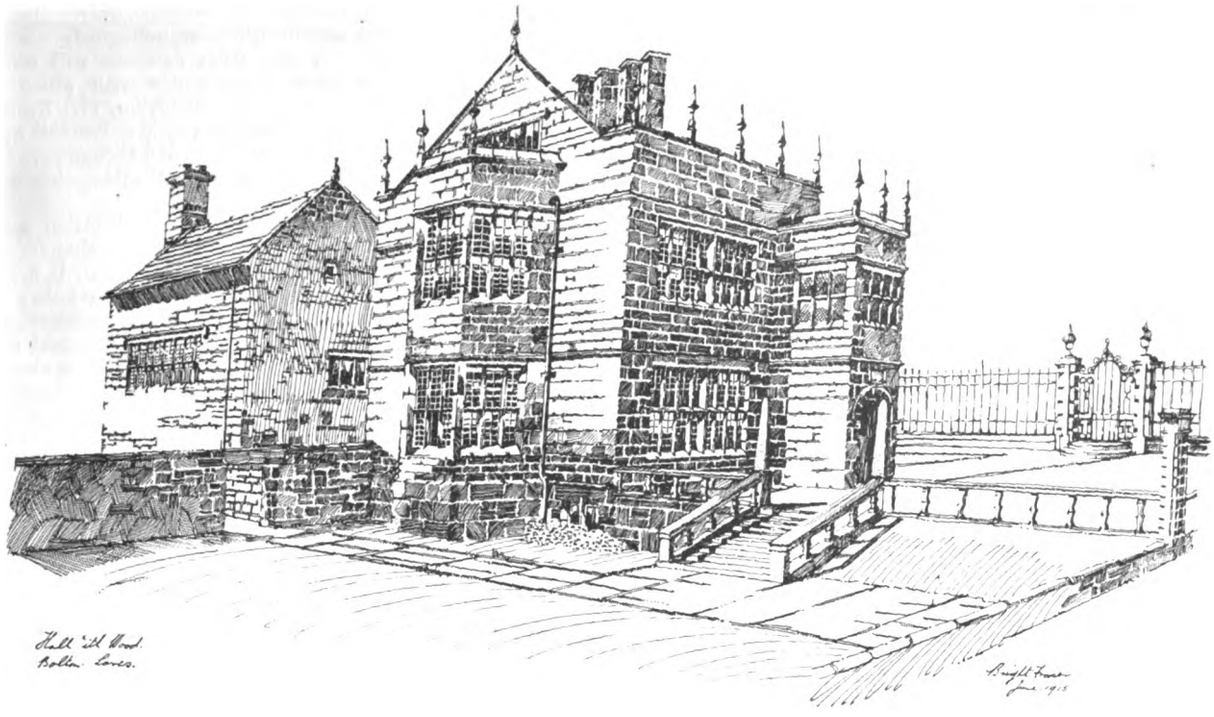
It is difficult to believe that the city fathers of Ancient Athens would not feel somewhat ashamed at the indecision of their present-day descendants in Scotland's capital over a site for the Gladstone Memorial. Four years ago the sculptor, Mr. Pittendrigh MacGillivray, pointed out a position in Saughton Gardens as being suitable. But to this the London Committee took exception, so it was never discussed by the authorities. Instead, some five other sites have been considered, and they have all failed to win unanimous approval for one reason or another. For nearly two years the completed work has been on the artist's hands, and still the pros and cons are being energetically debated. At last week's meeting of the Edinburgh Town Council a report was received from their Public Parks Committee, in which it was stated they had met the local Memorial Committee and considered two sites in East Princes Street Gardens offered by the Council. One of these was rejected by the Memorial Committee, while in the case of the other (opposite the Royal Hotel) they would only approve of it if the memorial was placed facing south—*i.e.* with its back to the street. The reason for this, as given by the sculptor, is that, however splendidly popular the south side of Princes Street may be in the estimation of Edinburgh folk, as a site for statues, every piece of sculpture in bronze placed there is practically doomed to be despoiled of half its effect. Let any layman of intelligence, says Mr. MacGillivray, go and have a look at the Adam Black statue at about mid-day on a fine day, and say if he can see anything more interesting than a vacuous, black silhouette. In this attitude he was backed up by Sir James Guthrie. But such a consideration does not weigh overmuch with municipal representatives. Even though their treasurer admits that "the back of the monument makes a good front," he is none the less adamant that it should conform to the others there by facing the thoroughfare. Fortunately, there was a way of escape from this impasse and from the possibility of the Memorial Committee seeing if they could not get better and quicker satisfaction in commercial Glasgow. The artist had from the first recommended Saughton Gardens, the local Memorial Committee (who were empowered to fix a site) are understood to approve of it, and the Town Council had no objection to raise. Therefore an effort will now be made to come to an agreement in the matter. If this does not succeed it will only be fair to give another town a chance of obtaining a memorial which, after all, was paid for by subscriptions chiefly coming from outside Scotland. Edinburgh has within recent years had a fair number of controversies of this kind, such as over the sites of the Usher Hall, the statue of the Marquis of Linlithgow, and the King Edward VII. Memorial.

The Trustees of the National Portrait Gallery in their fifty-eighth annual report, which was issued last week, record with obvious jubilation that an important preliminary to the much-needed extension of the Gallery has been settled. Plans were prepared by His Majesty's Office of Works during the early part of August 1914, and on August 17 a conference was held between the Principal Architect of that Department and officers of the National Gallery and National Portrait Gallery for the delimitation of the vacant ground on the site of St. George's Barracks. The plans drawn up by the Office of Works were, with some minor changes, definitely accepted by all parties, and the Trustees place on record their appreciation of the generous spirit in which their needs were met by the Trustees and Director of the National Gallery. The accepted scheme provides for a single gallery along the Orange Street frontage, practically in a line with the existing building. Some difficulty was subsequently experienced in adjusting the floor-levels of the proposed building to those of the present Galleries. The Trustees were aware that equality of floor-levels was a cardinal principle in the construction of all modern museums, and, in accordance with their representations, the Office of Works produced new plans, which were formally approved by the Board in February 1915.

It was hoped that in the course of the year (ending March 31, 1915) the rearrangement of the collections

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



THIS view is rather an unusual one of the fine old hall, for the usual illustrations show the half-timbered work as well as the stone. Nevertheless, this garden-front aspect is very charming, the main feature being the graceful bay window to the two best rooms.

The disconnected part of the building on the left appears to be older than the other, and the stonework to it is not dressed.

The gateposts, ironwork, and balustrading are modern work, erected at the time of the restoration, and can hardly be said to be in keeping with the building.

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which had been in progress for the past three years would be completed. But the necessity of protecting the Gallery, so far as possible, first against outrage by female agitators, and later from damage by German aerial attack, put an end to these hopes. Many of the best pictures had to be removed from the walls, certain rooms had to be closed altogether, and the arrangement of the remainder modified, so that the risk from personal attack, fire, or explosives might be reduced to a minimum. On July 16, 1914, the portrait of Thomas Carlyle, by Sir J. E. Millais, was attacked by a woman with a butcher's cleaver. The offender was sentenced to six months' imprisonment on July 21, but was released shortly afterwards. The damage done, though serious, fortunately did not prove to be irreparable.

From the University of Liverpool we have received the 1915-16 prospectus for both the School of Architecture and the Department of Civic Design. In both cases the Registrar gives a warning that the courses of study are subject to modification during the forthcoming session. There are but few changes announced in either staff from those of twelve months ago. In the School of Architecture Mr. H. Chalton Bradshaw takes the place of Professor S. D. Adshead, F.R.I.B.A., and the latter's Professorship of Civic Design in the other Department has been filled by Mr. Patrick Abercrombie, M.A., although the prospectus states that it is still vacant. Neither do we notice any important variations in the studies, &c., arrangements.

In the Department of Civic Design the studio work of the certificate students, which consists largely in the practical exposition of the knowledge acquired at the lecture courses, is under the direction of Mr. Patrick Abercrombie, M.A. The diploma students devote particular attention to the preparation of original town-planning schemes, both in general and in detail, and to the presentation of same in bird's-eye view perspective as well as on plan and in elevation. The following is a programme of subjects which it is proposed to set during the session. In order to comply with Regulation 4 of the certificate course, it will be necessary for students to carry out, to the approval of the Board of Studies, two large and two small subjects of those set for the session. The first three are small and the others are large. The particular aspects which each subject is designed to illustrate are added in brackets. 1. A Town Feature, drawn out from given data (Historic). 2. A Traffic Place, e.g., a Station Approach (Traffic and Site Planning). 3. A Small Urban Garden—including readjustment of roads, building frontages, &c. (Garden and Streets and Frontages). 4. A Suburban or Town Site, planned for housing purposes, and worked out economically (Economics, Land Values, Site Planning). 5. A Skeleton Development Plan for a Town: Traffic Route (Delegation of areas —Limitation of Houses per Acre, Park Systems, Street Sections, Civic Survey). 6. A Town-planning Scheme under the Act, carried definitely to the end of first part, and in general outline to completion, for presentation to Local Government Board.

ART IN LONDON.

THE ARTISTS' WAR RELIEF EXHIBITION.

A BODY of experts has just been considering the vital question of needful public economy; and the result of their cogitations may be found in some hints on "How to Save," issued for publication under the imprimatur of Mr. H. E. Morgan, one of the officials at the Ministry of Munitions. The first of these hints is that "no person should build a house to reside in himself at the present time," and this strikes at once at the very root of an architect's income in a majority of cases. Architecture, painting, sculpture, and artistic craftsmanship must necessarily suffer under conditions such as the world is now experiencing. It is consequently most fitting that some means should be taken to mitigate the distress that attends upon the prosecution of war. The Imperial Arts League and the Royal Insti-

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tute of British Architects are therefore to be commended for their joint organisation of this Exhibition at the Maddox Street Galleries, where the contributions are to be sold for the benefit of distressed brothers of the Arts mentioned above.

Bearing well in mind the charitable and brotherly intent, it would not be gracious to dwell upon demerits, or to emphasise such animadversions as might be fully justified from a purely artistic standpoint. But this it is perhaps proper to remark—that it can only be regarded as a poor compliment where contributors send in hasty sketches or hitherto unsaleable works, or indeed do anything to depreciate the artistic value of the display. This much we have ventured to say in dispraise, and have no intention of enlarging upon or of individualising the criticism. For the rest, we shall be but too pleased to refer to some of the works, which proved specially attractive through their innate good qualities. Mrs. Jane Inglis in "A Misty July Morning in Sark" shows excellent tone, and Mr. Alex. Maclean deserves full praise for his two contributions, depicting in each case a waste of waters under the silvery light of the moon. Sir E. A. Waterlow in "A Dorset Mill-stream" arouses our envious desire to have this picture permanently hanging on the walls of our sanctum. "The Acropolis, Athens," by Mr. Edward Mills, is a gem of colour, limpidity, and picturesque treatment. The merit of a work of Art may be quite independent of "subject," and this is the case with Mr. Matthew Hale's "In the Venetian Lagoon"; the colour is attractive, and the desirable quality of "mystery" is in evidence. An instance of good colour, chiaroscuro, and composition is Mr. St. George Hare's "In Disgrace," where we see the family "fool" quitting the castle. In our estimation, the best exhibit (taking all points into consideration) is Mr. E. W. Waite's "Sweet September"; it is a perfect work of Art. Mr. S. D. Adshead has a delightful scheme of colour in "A Kent Farm," with good massing and composition, slight though the call is upon the latter. Mr. E. A. Rickards imparts a brightness to his colour sketches, and this is the best quality in his work, except where we regard his black-and-white studies. Mr. Douglas Wells has sent several contributions, but we will rest content with appreciative notice of his "Street in Cassel, France," for its masterly touch and other good qualities.

We referred above to the best work on show; it is perhaps scarcely fair to Mr. Pyne's "Richmond, Yorkshire," to place the latter second; if all landscapists produced such work as this, Art would be on a higher plane than it is at present. Mr. F. E. J. Goff exhibits two charming water-colour studies, which should not be separated—there should be but one purchaser for both; in one is shown St. Paul's Cathedral, lifting its noble pile above the riverside buildings of St. Paul's Wharf, and the other shows the massive structure of the Houses of Parliament.

There are but four more exhibits to which we can refer here—Sir Aston Webb's virile sketch, "A Gateway at Bruges," Mr. Hanslip Fletcher's "Old Houses, Lisieux," Mr. Frank Emanuel's "Old Courtyard, Bruges," and Mr. E. A. Rickard's "Bridge of Peace"—these form a worthy quartette.

The Exhibition was opened on Wednesday afternoon, July 28, by H.R.H. the Princess Louise, Duchess of Argyll.

Mr. Ernest Newton, A.R.A., President of the R.I.B.A., before calling upon Her Royal Highness to declare the Exhibition open, gave the following brief account of the objects held in view when organising it:—"Our main object, of course, is to sell as many pictures and sketches as possible; and those who still have room on their walls have now an excellent opportunity of acquiring fine works of art, and at the same time of materially assisting artists and adding to the War Funds of the Imperial Arts League and the Architects' Benevolent Society. It may be objected that this is not a good time, when we are exhorted to practise the most rigid economy, to appeal to the public to spend money on pictures; but in answer to that I would point out that money spent on pictures is money invested, and at good interest too. The Imperial Arts League is not ordinarily an exhibiting body, and is only using its powerful organisation on the present occasion to assist painters whom the war has placed in temporary financial difficulties, and I need not remind you that such cases are, unfortunately, numerous. Architects are perhaps even more hardly hit than any other art workers. A buyer of pictures can to some extent help a painter to continue the practice of his art at a very modest outlay, but the employment of an architect is a much more serious affair. Many architects are, however, accomplished draughtsmen, water-colour painters, or etchers, and their exhibits will show to the public a side of an architect's life with which it is not, perhaps, very familiar." In conclusion, Mr. Ernest Newton thanked the Honorary Secretaries, Mr. Rendall and Mr. Redfern, and the members of the Joint Committee, for the immense amount of work done in getting together this excellent exhibition at very short notice.

Her Royal Highness then declared the Exhibition open.

The Earl of Plymouth proposed the vote of thanks.

This was seconded by Professor W. R. Colton, R.A., on behalf of the Imperial Arts League. He said that they not only welcomed Her Royal Highness as the representative of the Royal House, but as one who feels the mutual sympathy which artists have for one another. It was also his duty to thank the President and Council of the Royal Institute of British Architects for the loan of the galleries and for the charming way they have aided the Imperial Arts League in every particular in organising the Exhibition.

ILLUSTRATIONS.

EDGHILL MEMORIAL WINDOW, CHURCH OF ST. PETER, HORNSEY.

This window has been erected in the Lady chapel of the above church in memory of the Rev. Ernest Arthur Edghill, ordained in 1904 to the parish, with which he was connected as assistant priest for about three years.

Mr. Edghill was a man of varied interests and attainments, and while getting through a considerable amount of literary work, devoted much time and energy to the promotion of the Boy Scout movement, and to work among the poor children of South London. It was while camping out with a party of Boy Scouts that he met with the accident which resulted in his death.

The east window as originally erected had three principal lights of equal height, a form not well suited to the subject selected; it was therefore found necessary by Mr. J. Standen Adkins to alter the tracery of the centre compartment in order to gain additional height in the lower part.

The drawing from which the illustration is reproduced is by the architect's daughter, Miss Gwendoline Adkins, and shows the window as originally designed, but some alterations were made in execution to meet the conditions of the faculty.

ELF-LAND.

This study of animal and elfin life is intended as part of a frieze for the decoration of a child's play-room, and is also the work of Miss Gwendoline Adkins.

"WINTON," WENDOVER, BUCKS.

The architect's own house is situated on high ground between Coombe Hill and Boddington Hill, spurs of the Chilterns overlooking the Vale of Aylesbury. The natural beauties have been carefully considered in the "lay-out." The site is sheltered on the north by a belt of high elm trees, and as it is several feet above road-level a long, low appearance for the building seemed imperative.

The plan has been arranged so as to give a N.E. aspect for the studio. The living-room and dining-room are divided by folding panelling, enabling them to be used as one room if desired. The length of this room is 30 feet.

The walls are faced with multi-colour red sand-faced bricks and brown purple and red sand-faced tiles. The elm and oak woodwork externally is left its natural colour.

The internal joinery is treated with solignum.

The architect is Mr. Ernest G. Theakston, F.R.I.B.A. The contractors were Messrs. Jesse Mead, Ltd., of Chesham. The lead glazing and iron casements were carried out by Messrs. Weldon & Co., of Croydon.

OXFORD COLLEGE SERIES.—CORPUS CHRISTI. Nos. 148 AND 149.

With views of the interior of the chapel and the exterior of the President's House we complete our series of illustrations of Corpus Christi College.

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COMPETITION NEWS.

Leicester.—The Education Committee at their meeting last week considered the report of Mr. G. H. Widdows, F.R.I.B.A., the assessor, in connection with the competitive designs for the proposed Wyggeston Boys' School to be erected on a site in Regent Road and Victoria Road. The competition was limited to architects practising in Leicestershire. The award was as follows: (1) Mr. H. H. Thomson, F.R.I.B.A.; (2) Messrs. G. L. Brown & Percy C. Jones; (3) Messrs. Stockdale Harrison & Sons.

R.I.B.A. EXAMINATIONS.

Preliminary.

The preliminary examination, qualifying for registration as Probationer R.I.B.A., was held in London, Bristol, and Manchester on June 8 and 9. Of the eighty candidates admitted, thirty-six were exempted from sitting, and the remaining forty-four examined, with the following results:

Centre	Examined	Passed	Relegated
London	27	18	9
Bristol	8	5	3
Manchester	9	5	4
	44	28	16

Intermediate.

The Intermediate Examination, qualifying for registration as Student R.I.B.A., was held in London, Bristol, and Manchester from June 4 to 11. Twenty-one candidates entered, with the following results:

Centre	Examined	Passed	Relegated
London	13	5	8
Bristol	3	2	1
Manchester	5	2	3
	21	9	12

The number of failures among the relegated candidates was as follows:

A. Principal Styles and General History of Architecture	1
B1. Simple Applied Construction	8
B2. Theoretical Construction	8
C1. Historical Architecture:	
(*a*) Greek and Roman	2
(*b*) Byzantine and Romanesque	—
(*c*) French and English Gothic	—
(*d*) Italian, French, and English Renaissance	—
C2. Mathematics and Mechanics	1
C3. Design	5

Final and Special.

The final and special examinations were held in London from June 24 to July 2. Of the fifty-two candidates examined, twenty-seven passed, and the remaining twenty-five were relegated.

The number of failures among the relegated candidates in the final examination was as follows:

A. Design	12
B. Construction—	
(1) Foundations, Walls, Roofs, &c.	17
(2) Iron and Steel	19
C. Hygiene	19
D. Properties and Uses of Building Materials	9
E. The Ordinary Practice of Architecture	13
F. The Thesis	3

The Final: Designs Approved.

The Board of Architectural Education announce that the designs submitted by the following students have been approved:

Subject XXI.

(*a*) Design for a bandstand in a public park: C. J. Brandon, J. A. Dartnall, N. F. C. Day, R. A. Duncan, L. D. H. Hutton, A. D. Kellock, G. Munguia, F. Reixa, F. Tranmer, G. B. Tubbs, F. Wilkinson, F. G. M. Woodhouse.

(*b*) Design for a hostel for male students on a detached suburban site: M. C. Sunter, R. V. Taylor, G. Vinden, J. Wilson.

Mr. James Gillespie, architect, St. Andrews, left personal estate to the value of £22,017 7*s.* 7*d.*

R.I.B.A. AND SYMPATHY WITH FRENCH ARCHITECTS.

The following letter, signed by the President and Council of the Royal Institute, has been addressed to the President of the Société des Architectes diplômés par le Gouvernement, Paris:— June 1915.

Sir.—We, the members of the Council of the Royal Institute of British Architects, beg you to receive and convey to your colleagues of the Société des Architectes diplômés par le Gouvernement our profound sympathy with you, our confrères, and with the whole French nation on the wanton destruction by the Germans of so many examples of French architecture, many of which, such as the Cathedral of Rheims, were treasured by the whole civilised world as representing the highest possible achievement of mediæval architecture.

It is impossible to express in terms of moderation the feelings with which not only British architects, but the whole of our countrymen, have received the news of the ruthless destruction of noble buildings which have hitherto escaped the ravages of time and the violence of war.

These acts of barbarism are in themselves another proof that the German aggression is in reality an attack upon the common civilisation of Europe, and the knowledge of this fact has confirmed the British people in their determination to carry on the war, at whatever cost, until the fall of German militarism has gained for Europe some measure of security against so intolerable a menace to the peace and happiness of the world.—We are, Sir, yours faithfully,

Ernest Newton, President R.I.B.A.

[Signatures of the various members of the Council follow.]

A letter in the same terms and similarly signed was also sent to the President of the Société Centrale des Architectes Français.

The following replies have been received:—

Société des Architectes diplômés par le Gouvernement,
Paris: 22 Juillet, 1915.

A Monsieur le Président du "Royal Institute of British Architects."

Monsieur le President.—Les membres du Conseil d'Administration de la Société des Architectes diplômés par le Gouvernement, sincèrement touchés de la grande sympathie que vous leur témoignez ainsi qu'à la nation française en présence des actes inqualifiables commis par les Allemands sur les beaux monuments de France, s'unissent pour vous envoyer la cordiale expression de leur profonde estime et de leur inaltérable amitié.

Nous restons convaincus, qu'en se retirant, les hordes barbares ne respecteront rien et détruiront les merveilles qui restent encore entre leurs mains, car il est impossible d'attendre un éclair de raison de ceux qui, proclamant que l'honneur est un vain mot, ordonnent l'anéantissement des chefs-d'œuvre pour venger leurs insuccès.

C'est pour cela qu'il importe de poursuivre sans faiblesse le but que nous nous sommes assigné, c'est-à-dire l'écrasement du militarisme allemand. Confiants dans l'issue du duel sanglant dans lequel nous avons été entrainés, nous lutterons jusqu'au bout pour la civilisation et le bonheur de l'humanité. Et les monuments que nous élèverons dans le calme de la paix célébreront la libération des peuples d'Europe et chanteront la victoire.

Croyez, Monsieur le Président, vous et les membres de votre honorable société, à l'expression de nos sentiments bien cordiaux. Le Président:

Jacques Hermant.

[Signatures of the members of Council, &c., follow.]

Société Centrale des Architectes,
8 Rue Danton, Paris: le 3 Juillet, 1915.

Monsieur le President et tres honore Confrere,—Au nom du Bureau et du Conseil de la Société Centrale des Architectes, nous venons vous exprimer nos bien sincères remerciments pour le témoignage de confraternelle sympathie que vous nous avez adressé, au nom de l'Institut Royal des Architectes Britanniques, à l'occasion de la destruction systématique par les armées allemandes des monuments de notre France.

Le monde entier a été pénétré d'indignation en apprenant ces actes inqualifiables de vandalisme commis sur les plus précieux joyaux de notre architecture nationale et nous vous sommes particulièrement reconnaissants d'avoir eu la généreuse pensée de vous associer à la protestation véhémente et unanime de toute notre corporation.

Veuillez agréer, Monsieur le Président et très honoré confrère, l'assurance de nos sentiments de haute considération confraternelle.

Le Président de la Société, Membre de l'Institut,
(Sgd.) Laloux.

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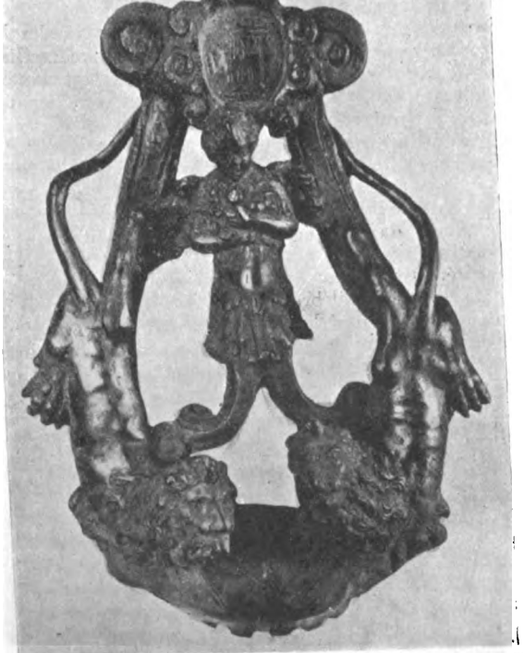
DOOR KNOCKERS.

The origin of door knockers is almost lost in obscurity. It is probable that the Greeks and Romans were the first to bring them into general use. The doorway of their houses



BRASS KNOCKER FORMERLY ON A HOUSE IN STAMFORD. SAID TO BE A REPRESENTATION OF ROMEO AND JULIET.

contained folding doors fastened by bolts pushed into sockets in the sill. At night the doors were further secured by means of a wooden or iron bar inserted into sockets on each side of the doorway. This arrangement for fastening doors



ITALIAN BRONZE KNOCKER OF THE SIXTEENTH CENTURY FROM NOTTINGHAM CASTLE.

may still be seen in some of the older churches in England and in a few ancient homesteads, such as Moreton Old Hall, near Congleton. In ancient Greece and Rome it was regarded as a breach of good manners to enter a house without giving warning to the inmates. Tradition states that the Spartans gave this notice by shouting, the Athenians by using the "knocker" where there was one, but the most common practice was to rap on the door with either the knuckles or a stick. In the houses of the well-to-do a porter was constantly in attendance at the door, and his duty was to open it and admit visitors. Eunuchs and slaves were



LACQUERED BRASS KNOCKER OF THE EIGHTEENTH CENTURY.

employed for this purpose, and in order to prevent them from straying and neglecting their duty they were chained to the post. To assist them in guarding the entrance to the house, and to repel unwelcome intruders, a dog was generally kept near the doorway, and the warning "Cave Canem" might frequently be seen written over the entrance



BRASS KNOCKER OF THE EIGHTEENTH CENTURY.

gate. The task of the attendant at the gate was a monotonous one and, wearying of his protracted vigil, he often went to sleep. In such circumstances it was necessary to find some effective means of awakening him, and it is suggested that the door knocker was evolved for that purpose. The earliest knockers appear to have been plain heavy rings without any attempt at ornamentation.

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In England the oldest remaining examples are those known as "Sanctuary knockers," of which that on the north door of Durham Cathedral is typical. Most of the cathedrals and some of the parish churches in this country



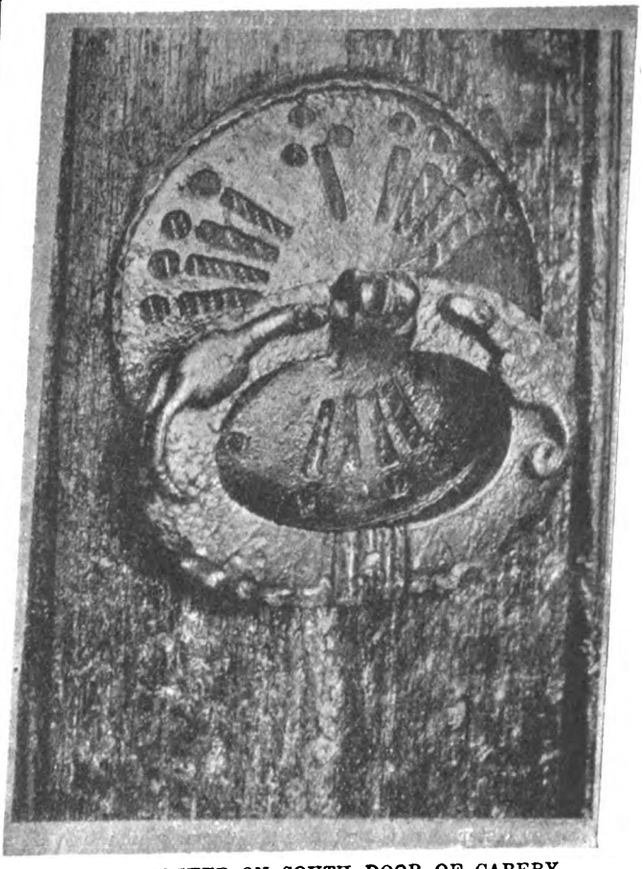
BRONZE KNOCKER ON THE ENTRANCE GATE OF HINCHINGBROOKE CASTLE, HUNTINGDON, THE SEAT OF THE EARL OF SANDWICH.

were at one time sanctuaries or harbours of refuge for criminals and others. If the persons pursued could reach the place of sanctuary before being captured they were safe



ON THE DOOR OF A PRIVATE HOUSE WITHIN THE PRECINCTS OF PETERBOROUGH CATHEDRAL.

from arrest and were housed, fed, and protected for a period not exceeding thirty-seven days, when they were either pardoned or taken to a place of safety far from the scene of the crime. This arrangement necessitated a constant attendant night and day at the door of the sanctuary, and a knocker was provided to speedily arouse him. Many of these sanctuary knockers are grotesque, others have a symbolical meaning, as in the case of that reproduced herewith from the south door of the church at Careby in Lincolnshire. It is of iron and said to date back to the fourteenth century. The rude carving on the handle is an interesting example of symbolism. In the centre is the head of St. Stephen, the patron saint of the church. He is shown to be asleep, and the two lizards are whispering into his ears to warn him that the devil is about to attack him. The moral which it is intended to convey is that a sleeping church



SANCTUARY KNOCKER ON SOUTH DOOR OF CAREBY CHURCH, LINCOLNSHIRE.

is sure of an attack from the powers of darkness. It is interesting to note that there is a curious mark on the left-hand side of this knocker, not, however, visible in the photograph, which is believed to be the private mark of the Inquisition.

In domestic buildings the earliest knockers were crude in design and workmanship, but from the fifteenth to the eighteenth centuries knockers of excellent design in bronze, brass, and iron were produced, many of which remain to this day. A walk round any old town in search of these interesting knockers seldom goes unrewarded, and occasionally a rare example may be met with. The examples which illustrate this note are but typical of many others that may be seen in the streets of our ancient towns and cities.

TRAVEL NOTES IN ITALY.*

By Percy W. Kebnot, A.R.V.I.A.

What is the charm of Italy? That such a charm exists to very many is undoubted. When once you have come under the spell of this romantic land, the deep longing to return will seize at most unexpected moments. The sight of a Roman urn, a Madonna, a majolica replica, or the smell of cypress or stone pine in a hot sun will be sufficient to recall memories of sun-baked walls, of vineyards, cypress avenues, white towers, wayside shrines, and the teeming and picturesque life of the roadway.

* A Paper read at the Royal Victorian Institute of Architects. A fine display of slides illustrating the Paper was shown by Mr. C. A. Cowper, F.R.V.I.A.

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Some few years ago a party of us spent some months in the larger towns of Italy, and, feeling the charm still upon us, we arranged another visit, intending to spend our time in some of the smaller centres; and, with this object in view, landed at Naples at the end of January last year. Propitious circumstances led to our arrival at the very season at which our previous trip terminated, so our knowledge of the seasons was continuous.

The climate of Naples during February was delightful; slight frosts at night were succeeded by sunny days, and signs of early spring were visible. Comfortably settled, overlooking the famous bay, we renewed acquaintanceship with the wonderfully interesting streets of Naples, explored the ancient city with its straight, narrow, teeming streets and old gateways, all surrounded and overbuilt by the old, but more recent, modern town, admired the fine effect of the clipped and arched ilex trees, forming walls of greenery in the Piazza Municipale, enjoyed the fascinating National Gardens on the sea front (in which we recognised many Australian gums and sheoaks), and watched the crowded traffic in the Chiaja. As it was the season, Naples was crowded with visitors. Bertolini's Terrace was filled each day for afternoon tea with an interesting cosmopolitan crowd well worth studying.

A pleasant trip from Naples is to take the train from the Toretto through the huge grotto or tunnel, and then along the coast past the iron works to Pozzuoli, a dirty and most interesting spot. Here St. Paul landed on his voyage to Rome, and the old dock is well worth visiting for those in search of the picturesque. Solfatina is easily reached by carriage or by walking from Pozzuoli. The guide conducted us over the glistening bed of the crater by a devious path, avoiding the numerous boiling mud springs. The ground sounds hollow underfoot, and when a light is applied to the sulphurous vapour issuing from cracks and rents in the ground, the smoke issues from other rents hundreds of feet away, and even from parts of the crater cliffs high above our heads. Flocks of sheep and goats were grazing on the edge of this inferno, and the bamboo huts of the shepherds were erected within a few feet of the boiling springs. The whole of this district is dotted with ruined Roman buildings, many buried by the numerous volcanic disturbances. The ancient Temple in Puzzuoli, which is approached through a bath-house, shows the signs of submergence under the sea, and is now again sinking below sea-level.

We spent a long day driving round the Bay of Baie, crawling into decorated, smoke-blackened tombs scattered among vineyards looking down on the beautiful bay in which Agrippina was drowned, descending into the great vaulted water cistern on Cape Messina, from which the Roman Fleet was watered, entering the mouth of the underground passage that connected Cumae with Lake Avernus. The district is a museum of ancient remains, and appears to be in the hands of private owners, who use decorated vaults as stables, and storehouses, and expect a few coppers from visitors.

Returning to Naples: The Castle Nuovo, with its handsome carved entrance gateway and bronze doors, is approached through military stores. Obtaining permission from the sentry, we passed into a yard among piles of empty shells, transport waggons, and other warlike stores, we had time to examine the carvings of the towers, representing scenes from the war with Spain, while a small boy went in search of the guide. When he appeared, armed with an enormous key, he pointed out the panels of the bronze doors representing incidents in local history. The heavy bronze has in one place been broken by a round shot, which is still embedded in the door. The inner court of the castle is crowded with military waggons, arranged in a very haphazard manner. The guide, with his enormous key, unlocks the chapel door and conducts us round the various historical and family monuments. A very fine circular, open, newelled staircase leads up to the private apartments; a narrow, steep stairway also leads down to the dungeons, which are reserved to the last. The guide shows the decapitated trunks, in their coffins, of two victims to the Spaniards' fury, and explains that they were preserved by being embalmed in sea water. He then lifted the lid of a third rough wooden coffin, in which is the mummy of a strangled Cardinal, still wearing his vestments. The awful look of terror, the gaping mouth and twisted hands and feet, are as realistic as when the unfortunate wretch perished hundreds of years ago. The guide, to relieve the situation, so fraught with horror, gave the withered, leathery flank a playful slap as he closed the lid, and asks us if we are "Contento." We assured him of our complete satisfaction, and only longed for open air, in which to forget his dungeons and their horrors.

The old church of the Carmine, situated just behind the Porta Capuana, near the ancient harbour of Naples, is one of the most picturesque in the town. At the time of our visit a horse fair was being held at the very doors, and we had some difficulty in dodging the heels of the stallions which were being offered for sale. Outside, the church has an imposing tower of black and white marble. The greasy, heavy leathern curtain that hangs at all church doors in Italy in winter has to be pushed aside, and we are in a beautiful mellow interior, Baroque in style, glowing with dull gold, long rays of wintry sunshine, heavy with dust motes, shine through the clerestory windows, lighting up shrine and statue. Here and there, amid the general gloom, the poor of Naples are here at their devotions. Matins are being sung, bells toll, the organ peels out, while we follow intricate passages into the chapel behind the altar, where, standing among a crowd of kneeling devotees, we are shown the miracle-working picture of Saint Bueno. We walked back from the Carmine, through some of the wonderful streets of the old town, and were particularly pleased with the street of the artificial flower workers, whose wares are shown in the open street, giving it a most festive appearance. It was Carnival time, and, meeting a crowd of students, our ladies were well sprinkled with confetti.

One day we had a discussion as to the composition of the characteristic smell of Naples. Some said wasting coffee and stable; others, humanity; all agreed that the predominating noise was the ceaseless braying of the humble donkey. From Naples, a rapid trip to Capri, Sorrento; thence by the famous roadway along the Gulf of Salemo to Amalfi. Here we rested at the monastery high on the cliff above the bay, celebrated in Longfellow's poem. The old cells are converted into bedrooms, the refectory is used as a dining-hall, the chapel remains, and a portion of the cloister. The vine terraces and lemon orchards, with the water cistern and cemented aqueducts, are maintained as of old. In the hanging woodland above the gardens we were pleased to find the first orchids, wild violets, and daisies, and other signs of spring. It is hard for the visitor to realise that Amalfi was an important mediæval republic, and a bustling commercial port at the time of the Crusades. At present the town is crowded into a small space between two headlands, at the mouth of a mountain stream. The houses climb the cliffs on either hand, and are approached by intricate, uneven passages. The cathedral, backed against the cliff, and approached by a high flight of steps, is almost buried by the surrounding buildings. Two ancient castles dominate the headlands, and the whole, as viewed from the city square, is most picturesque. The ancient city lies submerged under the blue waters of the gulf, and the fishermen still hear the church bells ring for Matins and Vespers as they float above the submerged towers. We slept well in our cells, notwithstanding the fact that a portion of the monastery has been carried away by a rock-fall from the cliffs, the scar of which is plainly visible.

All who take this route should visit Ravello from Amalfi. As the road is very steep, some of our party walked up by the old mule track, through romantic scenery. The track follows a mountain stream, and passes through vineyards and chestnut woods; the banks were purple with crocus. At one spot we saw how the immense labour of building the terraces for the vines was accomplished. The whole available population was at work—men, women, boys, and girls—all carrying stones or soil. Only by such a combined effort could such an amount of work be finished. About 10*d*. a day is a labourer's wage, I believe, in these parts.

Ravello is superbly situated, over fifteen hundred feet above sea-level, and overlooks miles of coastline. We felt we could almost throw the proverbial biscuit into the Gulf from the terrace of the Hotel Belle Vue. The padronna, hearing we were from Melbourne, was delighted to show us a photograph of her uncle's house in "San Kild," Melbourne. The contrast of this photo with our surroundings was striking. Ravello, stone built, ancient, deserted, side by side with St. Kilda's bijou villa. The cathedral contains the well-known inlaid mosaic pulpit, supported by polished shafts, on bases resting on the backs of lions and lionesses, and also some curious Scriptural mosaics. Many of the palaces in Ravello have marble columns at their entrances removed from the ruins of Paestum. The Ruffalo Palace, the garden terrace of which is one of the sights

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of Italy, bears a tablet erected by the inhabitants of the district to the generosity of the Gibson-Carmichael family, who at one time resided here. An incident of the road was characteristic. One of the ponies, beautiful little creatures from Sardinia, lost a shoe. The driver produced a spare one and a handful of nails, and with a spanner as a hammer proceeded to make good the defect; and a botched job it was. But there being no option, we had to complete the journey in this uncomfortable manner.

Rome is too large a subject to touch in a discursive paper. The huge Victor Emmanuel monument dominates the Capitol. "Time alone," as an Italian gentleman explained, "can pass a true criticism of such a stupendous work." Most lovers of the ancient condemn this work as disappointing and in bad taste; but Rome has survived many building periods, and its great charm is as an historical reference to great national movements; and the new memorial will pass into the future as one of these, built by the State to catch the eye of an emotional people, in competition with the great church memorial on the Vatican Hill. It has failed to eclipse the work of Michael Angelo, both in utility and in grandeur.

Architects in Rome must have an interesting time, as it is a rare thing to open foundation trenches without finding evidence of earlier construction, and occasionally sculpture and jewellery of great value is unearthed. The authorities of Rome are waking up to the fact of the great value of the historic remains their city contains, and are taking steps to protect them from injury. Unfortunately, in some cases this care has erred in taste. The beautiful little round Temple in the ancient cattle-market has been surrounded with rockeries somewhat after the St. Kilda Road pattern. Personally, I much preferred the litter of straw and picturesque groups of contradini which I knew of old.

Rome was indulging in the usual epidemic of strikes during our visit. The cabmen struck against the regulation fares, and received an increase. Still, even with this addition, we found it often more economical for four of us to hire a carriage than to use the tramcars. The Municipality struck against the Government over a question of hospital management. All traffic was suspended, and the shops closed for about three days; huge crowds met, and in places came into conflict with the military; numbers were ridden down. But we went about our sightseeing armed only with the tourists' red bible (Baedeker), which was quite sufficient passport to open the ranks of double guards, with fixed bayonets, who were stopping all other traffic. From Rome delightful day trips were made by electric tram across the Campagna to the towns on the slope of the Alban Hills. A good service of cars leaves Rome from the vicinity of the Stazione de Termini. In a short time we find ourselves traversing the undulating slopes of the Campagna, "so beautiful as to fill one with melancholy," as an Italian friend remarked. Monuments and ruined aqueducts stand out against the wonderful purple distances of the hills. Shepherds clothed in goatskin breeches, with the long hair on the outside, looking uncommonly like ancient satyrs, attended their flocks, their temporary huts of bamboo reminding us of Indian wigwams. The tram line follows the road to Frascati, and the whistle has to be frequently sounded to warn the sleeping driver of a picturesque wine cart which has strayed between the rails. After some ten miles of this journeying, the line leaves the open Campagna and ascends between vineyards in which are mounted guns with wide bell mouths, for shaking up storm centres in the heavens before the hail can descend and ruin the crops. The tram divides, one branch going to Frascati, famous for its villas, gardens, and wine. From Frascati a delightful trip may be made to Tusculum, and I would advise good walkers to go on foot, as the views all the way up to the ruins are delightful. The right-hand branch of the tram runs to Abano, where we get a fleeting glimpse of the beautiful crater-lake; and then on to Genzano, some twenty miles from Rome. Genzano is described in Baedeker as a poverty-stricken village, without attractions; but to sit in the central piazza and watch the women carrying water in copper buckets to their homes is worth the visit. Two types are very noticeable—a fair-haired, fair-complexioned type, supposed to show the northern blood of Charlemagne's warriors, are mixed with the smaller, vivacious, dark-skinned Italians.

Our objective in Genzano is the Lake of Nemi. Climbing the steep street, accompanied by a crowd of urchins, each anxious to earn a soldo, we reach the gate of the Palazzo Cesarini; but before admittance is granted we must interview the lordly major-domo at the palace adjoining. We enter our names in the visitors' book, the gates are unlocked, and we are as free of these beautiful gardens as if we owned them. This is a delightful feature of Italy; the way one is welcomed and shown over private property. It sometimes leads, however, to awkward moments, as when some over-zealous guardian leads one into a dining-room in which the rightful owners are sitting down to dinner. Awkward for the visitors alone, as Italian manners seem equal to all occasions. The winding paths of the palace garden lead through hanging woodlands down to the shining levels of the lake, 400 feet below. We spent hours wandering in this sylvan solitude, undisturbed, picking wild violets and narcissus in the woods, searching unsuccessfully for the ancient artificial outlet built by the Romans and still maintaining the lake at a uniform level. The journey back to Rome in the evening light, with the floating dome of San Pietro growing ever larger and more distinct before other features are distinguishable, is an experience long to be remembered.

Our last drive in Rome was to the Statione San Pietro, outside the walls, behind the Vatican Hill. We felt, as we waited for the train, that our Italian journeyings were starting in earnest. Here were no guides, no interpreters, no tourists but ourselves, as we waited in a crowd of rustic-looking people with large market baskets for the slowly coming train. At last a shout from a small boy: "Ecco il treno," which is taken up and repeated by the crowd, as it seems the fashion. We take up the cry ourselves, "Ecco il treno," and in the midst of great excitement and apparent confusion all climb, with their miscellaneous luggage, into the high railway carriages, and are soon steaming out north-west, into the country, getting a charming view of the great dome of San Pietro over the shoulder of a hill. A journey of about fifty miles brought us to the walled city of Viterbo. This populous town, enclosed by old Longobard walls and towers of lava blocks, is quite unspoilt by modern improvements. The cathedral, with its interesting tower, and memories of the English Pope, Nicholas Breakspeare, compelling the German Emperor to hold his stirrup. The old Palace of the Popes, great, rambling, furnished, but unused and fast falling into decay; the beautiful fragment of Gothic tracery on the arched bridge leading to the palace, all form a most interesting group to the architectural visitor. The Gothic is much purer in style than any we have hitherto seen in Rome or further south; worked out of dark lava blocks, with an undertone of purple. The whole city is built of this basalt, and the interior effect in some of the churches, particularly that of San Sisto, is good. San Sisto is built in two levels, a high flight of steps, on which is the pulpit, lifting the apse above the nave.

The market of Viterbo is most interesting. The bodies of pigs roasted whole were suspended on poles. The customer selects the portion he fancies, which is cut and weighed, and is then given a liberal helping of the force-meat with which the interior is stuffed. Earthenware, kitchen dressers, babies' cradles ornamented with Etruscan designs, are set out on the pavement of the Via Garibaldi; viands of all descriptions are spread out, and a dense throng of sellers and purchasers, chaffering in the rain, under immense coloured unbrellas, make a most animated scene.

From Viterbo we visited the ruins of Ferento. These lie five and a half miles away, across a wind-swept basaltic plateau, until recent years the haunt of banditti. Ferento was utterly destroyed by the people of Viterbo in 1172, as the outcome of a religious difference of opinion. We approached the ruins over a solitary, deserted plain; a shepherd attending his sheep, clothed in the extraordinary costume to be seen in fifteenth-century frescoes, was the only person in sight. It is these links with the past that constitute one of the great charms of Italy. This same costume we afterwards saw in the frescoes of Orvieto. The ruins of Ferento, partially excavated, are largely Roman, and are extremely interesting. The custodian, a desperately poor-looking cripple, tried to sell us skulls and marble fragments from the excavations.

Another excursion from Viterbo is to the charming Villa Lante, designed by Vignola. Orvieto, situated on a mountain plateau, the cliffs of which serve in place of defensive walls, is approached by cable tramway. The cars run on three rails, except at the passing place, where the middle rail branches into two. The town has a melancholy and

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deserted appearance. The chief point of interest is the magnificent Italian Gothic cathedral, with its great mosaic front and interesting frescoes. The tower and cathedral, both inside and out, are built in alternate black and white bands (basalt and limestone), a style much followed in mediæval times in Central Italy. The padrone of our hotel has an interesting and lucrative hobby. It appears that in Etruscan days the inhabitants were prohibited from throwing their rubbish over the cliffs, so the broken crocks, &c., found a resting place in the wells. Whenever one of these old wells is discovered, our padrone purchases the contents, and has all the old crocks cleaned and deposited in his courtyard, and in his leisure (which appears to be considerable) sorts them out and pieces up the original vessels. In this way he has obtained some beautiful examples, which are much sought after by museums and collectors.

The ancient well in Orvieto, down which donkeys descend a spiral ramp, and ascend another, is also of interest. Our party were charmed with the fresh air, beautiful scenery, and pleasant walks of Orvieto, and our stay lengthened out several days longer than intended. The journey from Orvieto to Assisi involved a change of trains, and a long wait at Terantola, a place of little interest. You can trust your fachinno, or porter, to look after you in Italy. Give him a lira, and he takes you to your train, finds you a seat, makes room for your luggage, and, in our experience, is to be trusted.

Assisi is approached by a drive of some three or four miles from the station across a dusty plain, and then a steep climb up to the rosy-pink city clinging like a swallow's nest to the brown side of Mount Subascio. The chief interest here is, of course, the connection with St. Francis. The great church—or, rather churches (for there are two—one super-imposed upon the other)—called after his name. The frescoes of the lower church, which recall one back, again and again, to their study, are the chief attraction to tourists; but the rest of the town is well worth exploring, and the surrounding country is most beautiful. We were amused hearing an American, who had just arrived and "done" the churches, remark to his companion, "We can't get out of this place till to-morrow morning."

A hot walk of about four miles by mule track (not possible for motors, thank heaven!) up the bare, glistening slopes of Mount Subascio, brings us to the hermitage of the Carceri, 2,300 feet above sea-level. It was St. Francis of Assisi's habit to retire here for meditation and prayer. A small monastery was built on the edge of the ravine, and a small park enclosed. After the heat and fatigue of the climb it was delightful to rest in the shade. An aged brother drew cool water from the well, and provided refreshing wine for us as we sat on the parapet of the courtyard, enjoying the extensive view. The rock bed of St. Francis is shown, also many of his personal relics. There is a most charming modern statue in the park, under the tree, where St. Francis blessed the birds, of the saint and his feathered friends. We were sorry to leave Assisi, after a visit of a week; but Easter was approaching, and we had engaged to spend that season in Florence; so, hiring a two-horsed carriage, we drove with all our luggage some sixteen miles across country to Perugia, the towers of which, directly in the line of the setting sun, had nightly beckoned us during our stay in Assisi.

Perugia is a town of great interest, and most important to the student of painting, as only here can Umbrian art be properly studied. Built on the top and slopes of a hill, the views over the surrounding country are impressive. Those interested in architecture should look up the Oratorio of San Bernardino, a magnificent polychrome work, in which marble and terra-cotta are employed; to the right of the Oratorio is a desecrated church, used as an iron works. The forges, seen in the dim religious light and the smoke-blackened walls, are most picturesque. A young mechanic invited us in to see Grottos (Jottos) Frescoes. It was evidently a standing joke of his, which he immensely enjoyed; but we were not quite so green, and we all laughed together.

The youth of these hill-towns of Italy have a pastime suited to their environment. Large discs of wood, about the size of a cheese, are bowled down the curving roads which climb the hills, and it is rather alarming to meet a flight of discs bounding down the slope. I tried my hand at throwing one, but it soon ended its course in the gutter.

Florence at Easter is most interesting, not only the ceremonies of the town itself, but those in the surrounding district are quaint and beautiful, but would require an evening to themselves.

Siena is an interesting centre for a long visit. The climate is delightful, very different from Florence, which so many find enervating. A town unspoilt by modern improvements despite the railless electric cars that traverse the narrow streets, often pulling right alongside the shop-fronts to pass a pair of the magnificent horned Tuscan draught oxen, harnessed to a wickerwork ox-waggon. The "were" wolf (a man in the form of a wolf) still haunts the streets at night, plunging into the Fountain of Fontebranda at the first streak of dawn, in the belief of the more ignorant of the citizens. The visitor receives nothing but kindness from the fine-looking people. The soaring tower of the Pal. Publico, over 300 feet in height, one of the noblest in Italy, seen from one of the dark and narrow streets in the full flush of sunset, will never be forgotten. Sodoma's picture of "The Scourging of Christ," in the Belle Arti, impressed me more, I think, than any picture I have seen. The simple technique and use of line in this fragment is masterly, and the finest thing in the Accademia collection.

We rested some weeks in Via Reggio, an Italian watering-place on the Ligurian Sea, and enjoyed sea-bathing and sandbaths. The sands are strongly impregnated with iodine, and so are recommended for rheumatism. At Via Reggio there is a prosperous ship-building business going on, most interesting to anyone connected with construction. The raw material for the ships is grown in the adjoining oak and pine forests; the logs are carted to the docks, and there cut to timbers or planks by sawyers, cutting the curved timbers from natural grown trees, the top sawyer following one line, the bottom sawyer another, thus getting the proper shear. The pine planking is also sawn so as to follow the natural curves of the trees, and the curves all seem to come in somewhere in the construction. Of machinery there is little or none. Ropes, canvas, sails, boats, ironwork, are all being made near the same spot. The Via Reggians are very proud of their ships, and well they may be, as they are beautiful specimens of naval architecture, sound and well built. As they say if a seaman is drowned, "If Antonio had only sailed in one of our ships he would not have been wrecked."

From Via Reggio we visited the famous Carrara marble quarries. By the courtesy of the Marble Quarries Railway Company, a special carriage was attached to one of the trains leaving Carrara for the quarries, high on the mountains. The line ascends by a series of zigzags, and fine views of the plains are obtained as we rise higher and higher. Below us it looks as if the whole population of the Carrara Valley had their washing out to dry; but we are told by the courteous official who accompanies us that the white dots are blocks of marble waiting to be sawn into slabs. The sawing is largely done by water-power, and the mills line the mountain torrents. After ascending some thousands of feet, the line enters a dark tunnel, and then we again emerge into daylight. What a change! Instead of the green squares of the cultivated plain, the white towns and villages, the distant blue Ligurian Sea, there is a mountain valley of dazzling whiteness. Large stacks of marble blocks line the railway, ready for transportation The slopes and cliffs above us, as far as we can see, up to the vivid blue Italian sky, are covered with glistening white spalls and chippings of marble, down which, on rough skids, large blocks are being lowered by crowds of men with hempen ropes. The spoil from one quarry overflows another, and endless are the lawsuits in consequence between the different owners. There is a proposal to erect overhead transporters, to convey the rubbish to the sea, there to be used in building a much-required breakwater. But want of co-operation between the quarry-owners has so far stood in the way of realisation. Leaving this station, still ascending, we pass through a long tunnel into another and higher valley, where the same scene is repeated. While our train of trucks is being loaded by overhead travellers, we are taken into a quarry in which a huge mass of stone has been blown down by powder and is ready to be cut up into blocks. The good stone in the cliffs is in irregular masses, surrounded by disintegrated stone, which is worthless. This accounts for the huge accumulations of spalls and rubbish. Electric power is supplied from generating stations on the other side of the range, and a good deal of quarrying by wire cutting, with sharp sand, is done. Our stay in the valley is punctuated by warning blasts on horns, followed by heavy detonations, which reverberated from the cliffs. While the train is being loaded we adjourn to a little inn, under the shelter of a projecting cliff; it is

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pleasant to retire from the heat and glare into this humble hostelry, where biscuits and a sweet, fruity wine are served, while the padrone shows us his portrait by Sargent, who spent some weeks here, fascinated by the scene. The railway company convey over 1,000 tons per day to the coast, and there is also a large traffic by ox-waggon from the valleys not served by the railway. The company's representative told us that blocks of marble at present in Rome, conveyed there in ancient times, are far beyond the capacity of the railway to handle. It is not known how they were removed from the quarries; but once on the sea beach the sand was dug away round them, and in the dock thus formed a ship was built outside the block of stone, which was then floated to sea. The blocks were Imperial property, and the ships were labelled A.U.F., and could demand assistance from any other vessel encountered on the voyage. This has passed into a local proverb, A.U.F. meaning "to get something for nothing."

These notes have covered some of the places visited during our journeyings in this most delightful land, where we received nothing but kindness and courtesy from the people, and which we left with regret, and the hope 'o revisit again.

NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS OF GRFAT BRITAIN AND IRELAND.

Mr. Sinclair (Scarborough), the President, took the chair at the half-yearly general meeting of the above Federation, held at Leeds on July 28. Delegates from all parts of the country attended.

The Lord Mayor welcomed the delegates and directed attention to the good work being done in the Leeds Technical School in connection with the teaching of building construction. In view of the probable scarcity of good workmen, he thought this was a matter which should be pressed on other authorities. The question of apprenticeship was very different to what it was fifty or sixty years ago, and they could not expect youths who had taken courses at technical schools to do the drudgery the old apprentices did in the early part of their term of apprenticeship.

A cordial vote of thanks was accorded the Lord Mayor on the proposition of the President.

Welcome to Visitors.

The President extended a cordial invitation to Mr. Williamson, President of the New South Wales Builders' Federation, to Mr. Volckerick, and other representatives of the Belgian Federation.

Mr. Williamson, in reply, promised to influence his Federation to get into closer touch with the British Federation. He also referred to the similarity of the troubles of builders in the Colonies to those at home.

Mr. Volckerick read a communication from Mr. Van Ophem, the general director of the International Federation of Building and Public Works Contractors, in the course of which he referred to the role the International Federation would probably play in facilitating the interchange of trade between the nations allied together against the Germans.

Forms of Contract.

The Council reported that since the last report the R.I.B.A. had informed the Federation that it did not see its way to participate in the negotiation of an agreed form of sub-contract, but was willing to consider any amendment of Clause 20 of the Agreed Form of Main Contract which might be deemed necessary to enable the Federation to negotiate forms of sub-contract with those concerned. The Joint Committee of the Federation and the Institute of Builders were considering what alteration, if any, was desirable; meanwhile the National Association, representing sub-contractors employed directly by builders, had intimated a desire to resume negotiations for a form of sub-contract. The Society of Architects had drafted a form of contract which it proposed to recommend to its members, and had requested this Federation to offer observations and criticisms thereon. The North-Western Federation had in preparation a form of contract which it proposed to issue. It was understood that the R.I.B.A. had in preparation a revision of the existing agreed form. It was earnestly to be hoped that out of these activities might come either such a revision of the agreed form or such an issue of an alternative form, under the ægis of the Royal Institute, as might render unnecessary the issue of any other.

On the motion of the President, seconded by Mr. Blackburn, the report was adopted.

The Question of Apprenticeship.

The President proposed the adoption of the report of the Administrative Sub-Committee on the Apprenticeship Question. The Committee expressed the opinion that in the absence of any compulsion requiring youths to serve or employers to train them, inducements must be offered. These inducements should be: (*a*) To the youths, immediate earning power plus future prospects; (*b*) to the employers, immediate utility as productive agents plus future utility as trained and efficient men. The only satisfactory way to induce employers to train apprentices is to put them upon a paying basis from their point of view. In the building trades there are classes of work which will not bear a high labour cost. The training of apprentices should be so arranged that they can be profitably employed at first on such work and subsequently on better work. It is suggested this can be done by training them systematically in a group system under a competent elderly artisan whose job it should be to act permanently as an apprentice instructor, his payment to be for that work and to be to some extent conditioned by results. By that means they got back as nearly as may be to the older system of apprentice, substituting, however, for the employer a paid agent whose own success depends upon his turning out competently trained apprentices. Jobs should be given these apprentice groups to carry out and be responsible for, just as they are given to groups of men under a leading hand. In this way a healthy competition could be fostered, and the work of the apprentice group made as profitable as the work of any other group. Employers should see to it that while apprentice work under this system is made to pay as other work pays, it is not made to oust skilled labour or trouble will ensue. The object should be to create skilled labour, not to create a fresh class of underpaid labour. Therefore the number of apprentices so employed should be limited by the legitimate needs of the trade. Under such a system time, during the day, should be set apart for theoretical instruction at the local technical schools where such exist. Age limit for taking apprentices should be raised to sixteen or seventeen years of age. Drudgery for apprentices should be abolished. Younger boys can be got for this, who may or may not continue at the trade, just as errand boys are used in some trades; failing these, labourers should be used. The starting wage should be raised and a higher scale adopted suitable to the district. Under an intensive system of training they could be made to earn their money. The tendency to start work in the building trade after breakfast should be favoured by employers, and might apply in any case to apprentices. Employers should make satisfactory arrangements on all jobs for the men and apprentices getting reasonably comfortable meals, and it will handsomely pay them to do so, as they will get better output from well-fed humanity, as is being shown now in the case of our soldiers. All apprentices should be required to wear overalls and come to and leave their work of a clean and decent appearance; the instructor should be required to see to this, and washing accommodation should be provided, so that no apprentice need feel ashamed to mix with respectably clad persons in the streets or in public vehicles. The foregoing appears to meet the need for trained workmen, but trained leaders of workmen are needed as well, and under this system it should be possible for the instructor to pick out and test boys who would be suitable later for foremanship or managership. Such boys should be marked and given facilities for the necessary higher training which will of necessity become more individual in character as they rise.

Mr. Bowen seconded the adoption of the report.

Mr. W. J. Renshaw (London) said he was in cordial sympathy with most of the findings of the Sub-Committee, but whilst their findings were comprehensive he thought their remedies were inadequate. Last year at Cardiff, and also at the general meeting in January, he stated that the Institute of Builders had prepared a scheme of apprenticeship, the basis of which was a continued connection up to the age of sixteen or seventeen between the school and the workshop, by which the school age would be extended or raised to sixteen or to seventeen years, and the first years of each apprenticeship term of five years would be worked with whatever advantages this school connection could give. He then expressed the view that it would be advantageous to tackle this most important question in conjunction with the Institute of Builders, feeling sure that the work already done by the Institute in conferences with the London County

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Council Education Authority would be most helpful to the cause they had at heart. He trusted this co-operation would still be possible. Stated shortly, the cause they had at heart was the provision of sufficient skilled labour to fill the needs of their trades and to ensure that the lads who became apprentices should be well trained and adequately paid. The Institute of Builders' scheme would, in the opinion of many experienced employers and educationalists, fill these conditions and had within it the foundation and framework of a really national form of apprenticeship. Apparently the Sub-Committee was content to still leave it to the employer to get his apprentices in whatever haphazard way he might previously have obtained them, but the present state of the apprenticeship question surely showed such methods to be inadequate, and he felt strongly that no really adequate and popular scheme could be devised unless it be in co-operation with the Education Authority. Mr. Renshaw proceeded to outline the scheme of the Institute of Builders. They suggested that a constructive scheme should be carefully elaborated by the Education Authority which would enable deserving boys to learn a trade under proper conditions directly they left school. To strengthen proper supervision over the boys the school age for those commencing their apprenticeship at fourteen should be raised three years; at fifteen for two years, and at sixteen for one year. Indentures of apprenticeship for a period of not less than five years in the masters' workshops or on jobs should be instituted so that a boy could learn his trade under working conditions. In order that apprentices should have full opportunity of studying the theoretical side of their trade two afternoons a week or time equal thereto during ordinary working hours which might be found most convenient should be allowed during the first two years of the term. The Institute further suggested that boys who gained scholarships should have the option of choosing a trade training, and where such option was exercised an apprenticeship with an approved employer could be entered into for an agreed term of years. Scholarship rewards to such boys should form an apprenticeship fund for payment to the employer or a suitable premium. Boys other than those who gained scholarships should have similar privileges, but in their case the premium should be advanced by the Education Authority. It was further suggested that a schedule of premiums and rates of pay should be prepared and agreed upon. They had pushed this scheme as far as possible with the London County Council, but after five years of continuous work the Council of the Institute had decided to go for Parliamentary action and an interview with the Minister of Education was arranged. In consequence of the war, however, nothing could be done at present. To meet the objections of some of the educational experts on the Higher Education Sub-Committee of the London County Council the Institute had prepared alternative schemes as to the payment or non-payment of a premium, and with regard to benefits derived by the technical training given by such schools as the London County Council School of Building at Brixton. He believed that the scheme of the Institute formed the nucleus of a workable scheme which might be made a national one, and he proposed as an amendment "That the further consideration of this report be adjourned; that the Institute of Builders' Apprenticeship Committee be invited to confer with the Administrative Sub-Committee; that such Joint Committee do consider the Institute of Builders' apprenticeship scheme and report the result to their respective Councils."

Mr. Thomas (Cardiff) seconded the amendment.

Mr. Howarth (Rochdale) thought the amendment might be tacked on to the report, but the conditions of London were very different to those of the provinces. He considered that in view of the shortage of boy labour builders would have to pay higher wages to apprentices. They might have Committees whose object should be to try to get boys following blind alley occupations into the trade, and they might also have guilds of apprentices in different towns to gather the boys together once or twice a year and give them a good time.

Mr. Cook (Bristol) urged that employers should take a more personal interest in the question of seeing that they had the full number of apprentices allowed by the Trade Union.

After further discussion the words referring to the adjournment of the question were deleted from the amendment, and the remainder was accepted as an addition to the report, which was carried.

Contract Conditions with Local Authorities.

The Administrative Sub-Committee submitted a summary of the inquiries which had been made by the various Federations throughout the country into the forms of contract and contract conditions in use by the local authorities. Arising out of the report they said the following policy suggested itself: That the Federation should draw up a model form embodying the main features of the agreed form plus special clauses for local authorities.

These special clauses to be derived from a study of similar clauses already used by local authorities, but so drawn as to attain any of their legitimate objects in a manner equitable to both parties. Arrangements with the R.I.B.A. might be necessary to avoid infringement of copyright so far as the use of clauses from the agreed form is concerned.

When complete the document should be adopted by the Federation and recommended to members for use with local authorities in preference to any other, and each local branch should be asked to try and get the form adopted locally by authorities. The Local Government Board should be approached by the Federation and asked to approve the form. The Institute of Builders should be invited to co-operate, and a joint committee might take the matter in hand, with power to employ the necessary legal assistance.

On the motion of the President, seconded by Mr. Mudge, the report was adopted.

War Bonuses.

As the result of the consideration of a resolution from the National Board of Conciliation, the Executive Council recommended the meeting to pass the following resolution:—

"That although this meeting is of opinion that the conditions prevailing in the building trade do not justify generally any payment of war bonus, it be a recommendation from this meeting to the local associations, at their option, that they may, in the present abnormal circumstances, relax the conditions now obtaining as to giving notice for alteration of rules, and in the event of applications for increase of wages they are to decide, after hearing evidence, whether such increase is justified or practicable. Failing an agreement, the usual conciliation arrangement to come into operation."

The President moved, and Mr. Thomas seconded, the adoption of the resolution.

The matter was discussed in private for a considerable time, and it was announced that it had been carried.

Board of Conciliation.

On the motion of Mr. Storrs, seconded by Mr. Dove, it was agreed: "That the United Builders' Labourers' Union be admitted to membership of the Conciliation Boards wherever working rule agreements exist between branches of the N.F.B.T.E. and the United Builders' Labourers' Union, subject to the approval of the parties at present affiliated to the scheme."

Mr. Storrs moved, and Mr. Wright seconded: "That the Electrical Trades Union be admitted to membership of the Conciliation Board wherever working rule agreements exist between branches of the National Federation of Building Trades Employers and the Electrical Trades Union, subject to the approval of the parties at present affiliated to the scheme."

Objection was raised by the London delegates to the practice which existed under which an admitted trade could have permanent representation on the National Board and could be enabled to sit on some matters which affected a totally different trade. Mr. Brown, however, agreed, on behalf of London, to accept the resolution and see how it worked.

The motion was then carried.

An application from the Bricklayers' Society (London Order) for reaffiliation to the Conciliation scheme was acceded to.

The Conference also agreed to give its adherence to the proposed national scheme for Demarcation Committees.

The Corporation of the City of London, instead of undertaking a municipal housing scheme to accommodate the poor who will be displaced by the St. Paul's Bridge scheme, has sold a site in Southwark for £10,000 to the Peabody Trustees, who have arranged to provide the necessary accommodation. There will be five blocks five storeys high, and a feature of the buildings will be the provision of one-roomed tenements. Baths and wash-houses will be supplied, and each house will have a hot-water tap.

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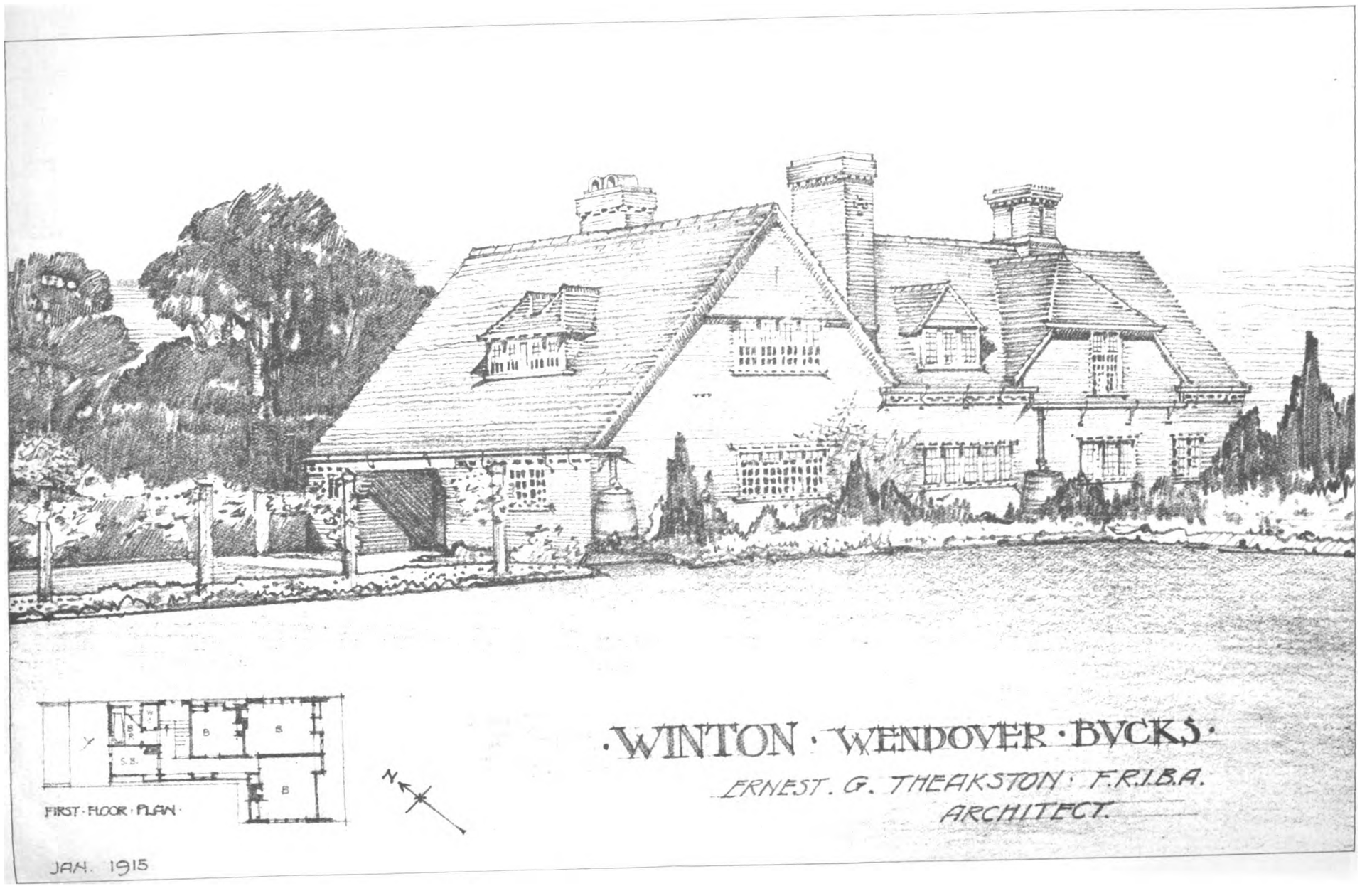
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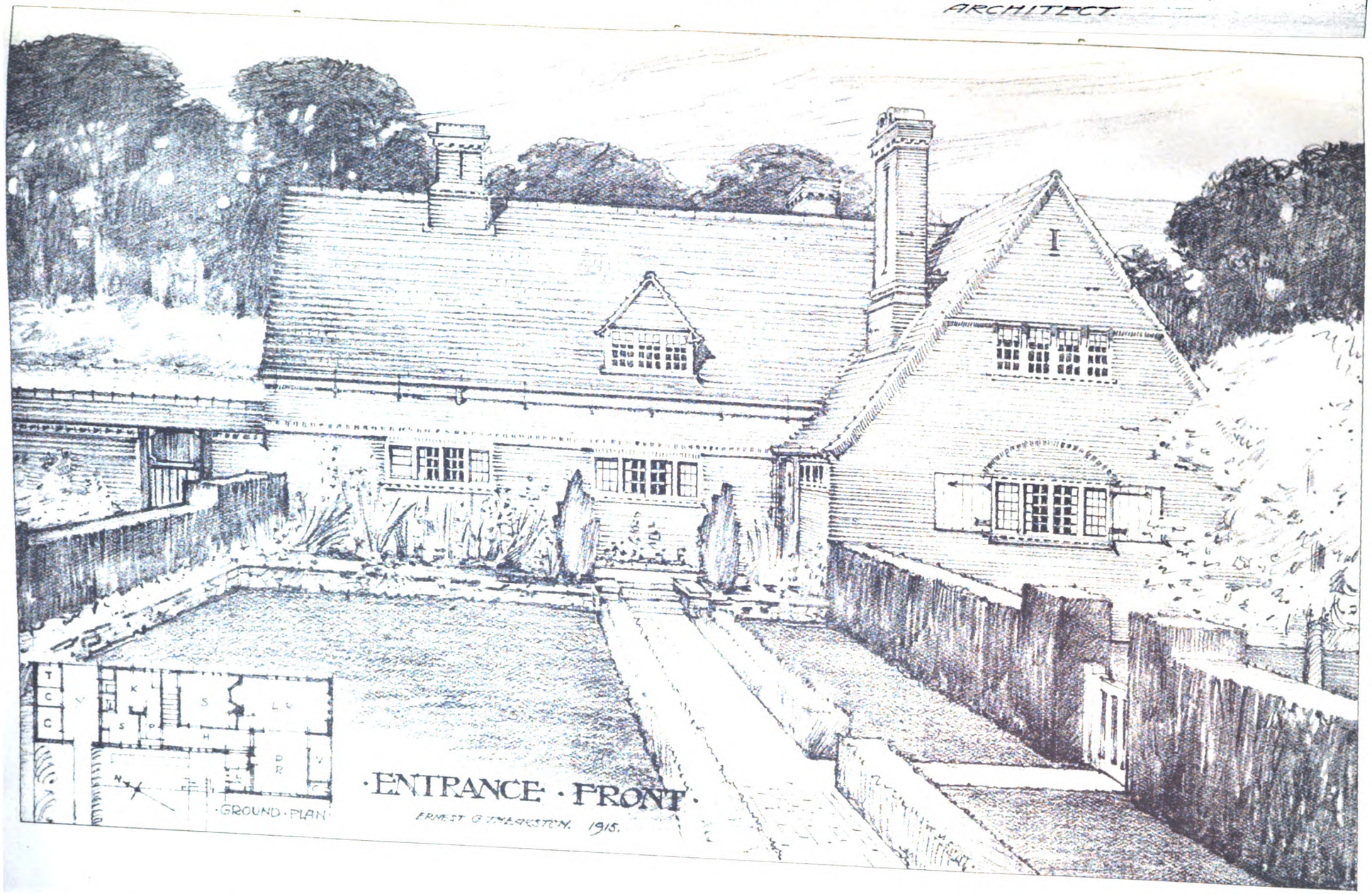


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SCALE 1915

ERNEST. G. THEAKSTON · F.R.I.B.A.
ARCHITECT.



(Royal Academy Exhibition, 1915.)

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ARCHITECTS' CLAIM FOR FEES.

An action of considerable interest was continued over three days at the Manchester Assizes last week, before Mr. Justice Atkin, without a jury. The following report is taken from the *Manchester Guardian*:—

July 26.—Mr. H. Stafford Golland, Hon. Secretary of the Manchester Athenæum (sued on behalf of the officers and members of the institution), was the defendant in an action brought by Messrs. Charles Clegg & Son, architects and surveyors, Manchester, to recover sums amounting in the aggregate to £721 for work done and services rendered. Mr. Acton and Mr. Jordan were counsel for the plaintiffs, and the defendant was represented by Mr. Atkinson, K.C., and Mr. Brocklehurst.

Mr. Acton said there were also associated with the plaintiffs in the action Messrs. Hurrell & Taylor, quantity surveyors, Manchester. The Athenæum was a large and famous institution in the city, devoted to artistic, literary, and intellectual pursuits. It included a fine hall in which concerts, lectures, and amateur dramatic performances were given. For some reason or other Sir Charles Barry, the famous architect, who designed the building, put the hall on the top floor, which was not, of course, in accordance with modern ideas of safety or convenience. About the middle of 1912 the Watch Committee of the Manchester Corporation condemned the theatre or hall because of its position, and because, in their view, it had not the necessary staircase accommodation. In July 1912, Mr. Golland consulted the plaintiffs with a view of removing the hall from the top to the bottom of the building. Messrs. Clegg were of opinion that it could be done, and that it would be necessary to prepare plans and take out quantities. The wish of the Athenæum authorities was that they should only have one firm to deal with for the purposes of payment, and Messrs. Clegg, therefore, made arrangements with Messrs. Hurrell & Taylor for the work they would have to do. Terms were arranged on the basis fixed by the Royal Institute of British Architects, and Messrs. Clegg prepared sketch plans. Various alterations were suggested by the Committee of the Athenæum, and these were made in the sketch plans, which were obviously distinct from working plans. There was a suggestion that the Manchester Corporation should buy the building, but this was not carried out. Amended sketch plans were finally passed by the Corporation, and the members of the Athenæum at a meeting resolved to proceed with the work. Messrs. Clegg then prepared sectional working plans and Messrs. Hurrell & Taylor took out the quantities. It appeared that Messrs. Clegg's original approximate estimate was £17,000, but this was greatly increased by the alterations suggested, by tests as to the foundations of the building, and other matters, and the lowest tender was £29,000. This was reduced in consultation with the plaintiffs to £21,177, some of the more expensive items being cancelled. Ultimately, however, the Athenæum authorities decided that owing to the war they would not proceed with the work. The plantiffs thereupon sent in their bills of charges. A sum of £310 had been paid, but the defendants disputed liability to the extent of £721, which the plaintiffs now sought to recover.

At the close of counsel's statement the Judge suggested that all the parties were men of position in Manchester, and the case appeared to be one in regard to which an arrangement might with advantage be arrived at.

Mr. Acton said the plaintiffs were quite prepared to leave it to the Judge. They only sought to recover what was fair.

Mr. Atkinson said the matter had been very carefully considered.

The Judge said if he could be of any help he would be glad.

July 27.—Mr Charles Theodore Clegg, one of the plaintiffs, said the charges made were in accordance with those recognised by the Royal Institute of British Architects, of which his firm were members. The suggestion that the Corporation of Manchester should buy the Athenæum building was not carried out, and the alterations to the building which the directors proposed (which included the removal of the lecture hall from the top to the bottom) were abandoned by the board on account of the war. If they were carried out the directors would have the advantage of the work done by his firm, and by Messrs. Hurrell & Taylor, the quantity surveyors. When, following the instructions of the defendants, he invited tenders for the work he thought the lowest received, which was £29,000, was too high. The highest tender was £34,000. Thereupon he and Mr. Hurrell made a series of suggestions with a view to reducing the cost, and ultimately they got a tender for £21,350. For all that they charged nothing; they did it to meet as fairly as they could the wishes of the directors. His first estimate of £17,000 was not misleading, having regard to the proposals he was then asked to consider.

Cross-examined, the witness said he was instructed to get on with the quantities, and that involved the necessity of preparing working plans. The contract he was relying upon was the instructions given to him originally, after being called in to act as architect—namely, 5 per cent. and 2½ per cent. for the quantities, which the defendants agreed to in writing. His original agreement was that he should prepare sketch plans and if anything was done in the matter he should be the architect at the terms mentioned.

Mr. Atkinson: Do you say that when you were instructed to prepare quantities that amounted in your mind to instructions to prepare working drawings and everything?—Yes.

It was reasonably clear from the outset that these gentlemen were not going to commit themselves to any expense without knowing pretty definitely what it was.—They wanted to have an idea of it.

What their indebtedness to you was in connection with the scheme?—Yes.

In further cross-examination the witness said he knew there were two parties in the Athenæum—one wanted to proceed with the work and the other did not. Mr. Golland told him it was important to win over the opposition, that the board should be able to put before them a definite figure beyond which the Athenæum would not be involved. That definite figure could not be arrived at until tenders had been obtained. He did not remember saying to Mr. Golland that he was prepared to offer special terms. The plans he prepared for submission to the Corporation would not do for working drawings.

Mr. J. W. Hurrell, Brazennose Street, Manchester, quantity surveyor, Mr. A. J. Murgatroyd, architect, Manchester, and Mr. J. W. Beaumont, architect, Manchester, gave evidence as to the reasonableness of the charges made by the plaintiffs.

This closed the plaintiffs' case.

Mr. Atkinson, for the defence, submitted that his clients took no step in the matter without making a special contract with the architect as to what the cost would be, and it was therefore idle to quote the terms of the Institute of British Architects, and to say they formed part of the contract. The defendants understood that the costs to which they would be put were covered by the original charges. One had to consider the persons one was dealing with, who did not know about these matters.

The Judge: Amongst the arts dealt with at the Athenæum, is not architecture one?

Mr. Atkinson: It is only a club; they have nothing to do with architecture there.

The Judge said quantities could not be got out until plans were prepared.

Mr. Atkinson: We have a very good set of plans here, prepared for the Corporation. If it was necessary (counsel said) to have special plans for getting out the quantities and working from, the plaintiffs ought to have told the board so, but there was not a syllable about it.

Mr. H. Stafford Golland said he was hon. secretary of the Athenæum. He described the negotiations with Mr. C. Clegg, and said he told him that the fullest extent to which the directors of the Athenæum could go was £20,000, and it was doubtful whether they could go to that limit. They got the plaintiff's estimate for £17,000, together with his reports as to the carrying out of the work. There was strong opposition to the scheme in the institution. It was understood that the plans shown to the Corporation represented, so to speak, the last word. The witness gave his version of conversations with Mr. C. T. Clegg during the progress of the negotiations, in which he differed materially from the evidence with regard to them given by Mr. Clegg. He had not the faintest idea, he said, that in addition to the charges they had already made, the plaintiffs intended to charge the Athenæum with the cost of preparing working drawings and making a survey. He had no idea they were under any liability beyond £250.

Mr. Atkinson: Did you know, till we were told to-day, that the existing plans were useless for the purpose of getting quantities made out?—I did not.

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And that it would be necessary to prepare an entirely new set of working drawings?—I did not.

The trial was adjourned.

July 28.—Mr. H. Stafford Golland, in further examination by Mr. Atkinson, said nothing would have persuaded his board to go beyond £17,000 in the work proposed, and Mr. Clegg assured a member of the board that the scheme could be carried out for that sum. When he gave Mr. Clegg instructions to get out the quantities so far as he was concerned he had no idea that they were giving him instructions which involved the board in an expense of 2½ per cent. for working drawings—not the remotest.

Mr. Atkinson: Your view was that 1½ per cent. covered everything?

The Judge: One and a half per cent. on what?—On the amount of the tender.

Continuing, the witness said he did not know that a survey would be necessary for which the plaintiffs were going to make a charge. He knew nothing about the survey. He did not make suggestions that the new hall should be lined with oak or that certain tiles should be used. Mr. Clegg put before him such suggestions, and the witness replied: "That would be very nice, but you must remember you must keep within your estimate of £17,000." He said that many times. When the tender of £29,000 was opened the witness had an interview with Mr. Clegg, "who was absolutely dumbfounded at the amount, and said there must be some mistake." At a later interview Mr. Clegg said he and Mr. Hurrell, the quantity surveyor, had been in consultation and could see their way to take out £9,000 in the cost of the building. The witness asked why on earth, if that had to be taken out, it had ever been put in, and Mr. Clegg replied that he had been too anxious to make the Athenæum a model building and had been too extravagant.

Mr. W. M. Reekie, a member of the board of the Athenæum, said he knew that the limit which the board would spend on the scheme was £20,000. He had discussed it on more than one occasion with Mr. Clegg, particularly with regard to the new lecture-hall. He said, "Can you do what you show here for our limit of £20,000?" and Mr. Clegg replied, "Unless something very extraordinary happens in our foundations or something of that sort I think it can be done." The money necessary for the work would have to be borrowed or subscribed by the members of the institution. The witness had no idea that he was making the institution liable for more than 1½ per cent. for the quantities.

In reply to Mr. Acton, the witness said he saw the difference between the plans submitted to the Corporation and the working drawings. He remembered making the remark that "someone would want paying for all this."

Mr. G. Nicol, Mr. W. Fletcher, and Mr. H. Furber, directors of the Athenæum, all said, in evidence, that they understood the 1½ per cent. would cover everything.

The Judge, in giving judgment, said in the absence of any express agreement between the parties there could be no dispute that the remuneration which the architects were entitled to receive would be 2½ per cent. upon the amount of the lowest tender, and, in respect of alterations and other work, the usual professional terms. The real defence in the case was that the defendants had always been anxious to know beforehand what the limit of their expenditure was going to be, that before they decided to go on and obtain tenders for the work they tried to find out how much they had to pay the architect, and that they understood the sum they would have to pay him was 1½ per cent. upon the lowest tender. It was for the defendants to make out that there had been a special contract. In order that working plans might be prepared it was necessary that quantities should be taken out, because it was utterly impossible that original sketch plans would suffice. He was satisfied that in the absence of proper plans no quantities could be taken out that would be of the slightest value. He found that Messrs. Clegg were entitled to recover the sum that they claimed—namely, 2½ per cent. upon the lowest tender of £21,117, and 1½ per cent. in regard to the quantities, together with some other charges, including the charge for the survey. He disallowed an item with regard to assisting to procure a mortgage. The total claim allowed was £982 2*s.* 7*d.* From this amount there had to be deducted £310 5*s.* already paid, leaving the amount, for which he gave judgment, £671 17*s.* 7*d.*

In answer to Mr. Atkinson, the Judge said he did not think he should grant a stay.

Solicitors: For the plaintiffs, Messrs. Norton & Howe; for the defendants, Messrs. Sale & Co.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Buckingham.—Hyde Lane Farm: cooling house, for Captain Hall.

CHESHIRE.

Tarporley.—No. 102 High Street: alterations, for the Crewe Co-operative Society.

CORNWALL.

Falmouth.—Church day-school for 450 places (£5,000).

St. Dominic.—Council school.

CUMBERLAND.

Low Row.—Reading room and public hall. Mr. J. W. Benwell, A.R.I.B.A., architect, 28 Lowther Street, Carlisle.

DURHAM.

Ferryhill.—Thirty houses, Ferryhill Station, for the N.E.R. Company.

Spennymoor.—Church school, Tudhoe: additions and alterations.

ESSEX.

Ilford.—Free public library.

GLOUCESTERSHIRE.

Bristol.—School, Staple Hill: enlargement. Mr. R. S. Phillips, architect, Education Committee's Offices, Shire Hall, Gloucester.

HAMPSHIRE.

Portsmouth.—Block of four almshouses, Glasgow Street (£1,200), for the Friendly Societies.

HERTFORDSHIRE.

Berkhampstead.—House and shop, Lower King's Road, for Mrs. E. Needham.

Bushey.—Four houses, Koh-i-Noor Avenue, for Mr. E. Fulks.

KENT.

Dover.—The "Metropole" Hotel: alterations and additions. Mr. W. Beeston, architect, 10 Eastbrook Place.

Maidstone.—House, Loose Court Estate, for Mr. Hodge.

LANCASHIRE.

Bury.—Weaving shed, Pine Street, for the Elton Cop Dyeing Co., Ltd.

Warrington.—Smallpox hospital, Winwick-with-Hulme (£1,500).

MIDDLESEX.

Acton Green.—St. Peter's (new) Church.

Ealing.—Isolation hospital: additions (£525). Mr. W. R. Hicks, Borough surveyor.

Hornsey.—Proposed public elementary school for 1,200 places.

Mill Hill.—Ten houses, Millway, for Mr. E. Streather.

MONMOUTHSHIRE.

Maesycwmmer.—St. Thomas' (new) Church.

NORTHAMPTONSHIRE.

Rushden.—Public elementary school for 175 places.

NORTHUMBERLAND.

Newcastle-on-Tyne.—St. Margaret's Church, Denton and Armstrong Roads, Scotswood (sittings for 550) £6.500. Messrs. Hicks & Charlewood, R.I.B.A., architects, 67 Westgate Road.

Tynemouth.—No. 13 Camden Street: additions. Mr. J. P. Spencer, architect, 30 Howard Street, North Shields.

STAFFORDSHIRE.

Stafford.—Engineering School.

Stoke-on-Trent.—Proposed girls' secondary school.

Tamworth.—Twenty-four Council houses.

Walsall.—Picture House. Messrs. Hickton & Farmer, FF.R.I.B.A., architects, Bridge Street.

SURREY.

Sutton.—Free Church, Station Road, Belmont.

SUSSEX.

Burgess Hill.—Congregational vestry and Sunday-school (£1,400).

Chichester.—U.M. Chapel (£2,500).

WARWICKSHIRE.

Berkswell.—House, Waste Lane, for Mr. R. Greenway. House and shop, Catchem's Corner, for Mr. F. Greenway.

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ENGLAND—*continued.*

WARWICKSHIRE—*continued.*

Brownsover.—Six houses, Houston Road, for Messrs. Carr.

Coventry.—Club premises, Payne's Lane: additions for Mr. J. Perkins.

Electricity Sub-station, Parkside, for the Corporation.

House with shop, Clay Lane, for Mr. H. J. Emery.

Two houses, Collingwood Road, for Messrs. Davis & Hewlett.

House, Farman Road, for Mr. C. E. Needham.

House, Hawkins Road, for Mr. G. W. R. Philpot.

Eight houses, &c., Heath Road, for Mr. A. Jeffs.

Five houses, Queen Mary's Road, for Mr. J. Clifton.

Two houses, Sovereign Road, for Messrs. Osborne & Co.

Two houses, Stanway Road, for Mesrs. Egginton & Griffiths.

Four houses, Terry Road, for Messrs. Jarvis Brothers.

Premises, Spoon End: additions for Messrs. Dingley Brothers.

Premises, Parkside: extension for the Siddeley-Deasy Motor Car Co., Ltd.

Store Rooms, Bond Street, for Mr. S. H. Lee.

YORKSHIRE.

Barnsley.—Offices, Church Street, for the W.R. Permanent Relief Society. Mr. E. W. Dyson, architect, 10 Regent Street.

Brierley.—Church school: enlargement.

Council School for 150 places.

Carcroft.—Presbyterian church (£3,150). Mr. F. B. Thompson, architect, 15 Parliament Street, Hull.

Cloughton.—Proposed P.M. Chapel.

Doncaster.—One hundred and two houses, Carr House Estate, for the Corporation. Messrs. Ireland & Hanscombe, A.R.I.B.A. (of Ealing and Sanderstead). architects.

Mexborough.—Electric generating station: proposed extensions (£4,000).

Mytholmroyd.—Two houses, Caldene Estate, for Mr. C. Wade.

Sheffield.—Fire Station, Rockingham Street: proposed extension.

Skipton.—District Hospital: proposed extension.

WALES.

Cardiff.—School. Messrs. Willmott (A.R.I.B.A.) & Smith, architects, 29 St. Mary Street. Mr. W. J. T. Francis (of Penarth), contractor.

Llandudno.—The "Great Orme" Hotel: extension, for Mr. T. MacDonald.

Maesteg.—No. 1 St. Michael's Road: additions, for Mrs. K. Lewis.

House, Plasnewydd Street, for Mr. J. Evans.

SCOTLAND.

Falkirk.—Sanatorium and hospital (for 38 beds).

Gamrie.—House, South Cushnie. Mr. G. Morrison (of Macduff), architect.

Leith.—Warehouse, Ashley Place, for E. Chalmers, Ltd.

IRELAND.

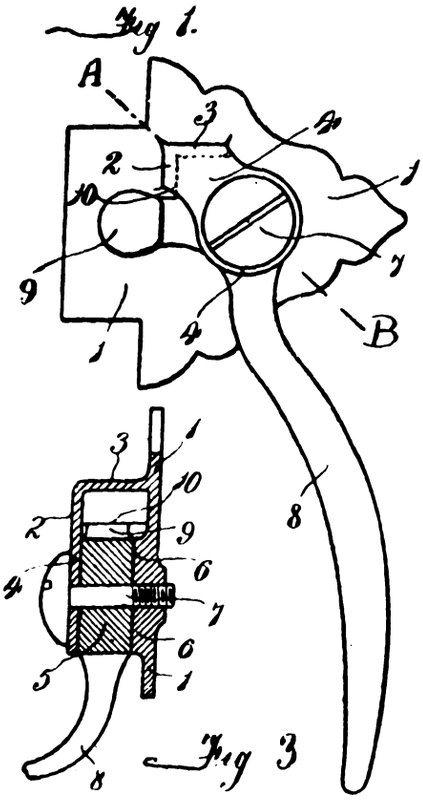
Dublin.—Sixty-four Corporation dwellings (£12,900).

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 27,564. Dec. 1, 1913.—Casement Fasteners. John Gibbs, of Dyson & Gibbs, Ltd., Grange Road Works, King's Heath, Birmingham.—This invention relates to casement fasteners for locking hinged windows of the type which employ a pivoted handle with nosepiece adapted to engage with a striking plate of the window frame or window, the handle being supported between an outside or overhanging member and the base plate. Fig. 1 is a front elevation.



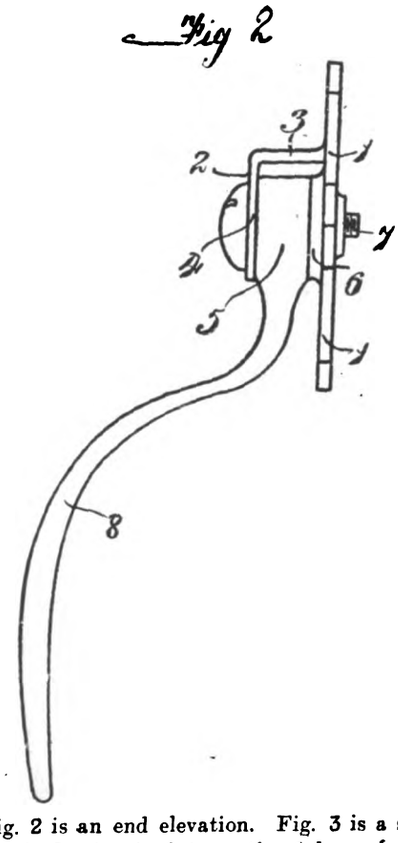


Fig. 2 is an end elevation. Fig. 3 is a section on the line A—B, fig. 1. A plate portion 1 has a bracket formed upon it with a base portion of approximately L-section, the limbs 2 and 3 of the L facing upwards and outwards. The base portion supports an overhanging plate 4, shaped to cover a boss 5 upon the pivoted member, and a corresponding boss 6 may also be formed upon the main plate I. A screw 7 is passed through the overhanging member 4 and the pivoted member into the boss 6 upon the plate wherein it is screwed. The pivoted member has a handle 8 curved away from the plane of the plate to give finger room and a nose 9 at an angle of rather more than 90 degrees to the handle, and is so arranged that the nose abuts against one edge 10 of the base of the bracket as it reaches the horizontal or shut position. In fig. 1 it is shown not quite touching. The screw about which the handle is pivoted is far less likely to break owing to the support given near the head, and the tightness may be adjusted by tightening the screw and so springing the bracket slightly inward without any liability of the screw to twist subsequently.—Feb. 3, 1915.

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PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 26,379. Nov. 17, 1913.—Wilhelm Buddeus, 20 Mommsenstr, Charlottenburg, Germany. Reduction of zinc oxide.

26,566. Nov. 19, 1913.—E. L. Muller, Landshuterstr 18, Schoneberg, Germany, and Fritz Siegheim, of Wildemannin-Harz, Germany. Stone working machines.

3,130. Feb. 6, 1914.—Dated under International Convention Feb. 10, 1913.—Walde, Kade & Erath, Steinbach, near Schwabisch Hall, Wurtemberg, Germany. Apparatus for marking out angle iron.

4,356. Feb. 19, 1914.—Dated under International Convention Feb. 19, 1913.—Allgemeine Elektricitats-Gesellschaft, 2-4, Friedrich Karl Ufer, Berlin, N.W. Germany. Device for the storage of heat.

4,539. Feb. 21, 1914.—Max Lorenz, Rodaun, Kaltenlentgehenerstr 24, Lower Austria. Means for removing cement from kilns.

8,095. Sept. 28, 1914.—A. B. Anderson, 1 Young Street, Edinburgh. Method of and means for forming an airtight joint.

8,806. April 7, 1914.—Dated under the International Convention April 15, 1913.—Firm C. A. Schaefer, Hildesheimerstr 220, Hanover. Holders for electric glow lamps.

8,839. April 7, 1914.—Dated under International Convention April 9, 1913.—Eduard Wessely, Graz, Steyrergasse 74, Steiermark, Austria. Manufacture of plates from cement formed of magnesia and magnesium chloride.

10,002. April 22, 1914.—Hans Zimmermann, 25 Lameystr., Mannheim, Germany. Heat exchanging apparatus.

10,071. April 23, 1914.—Dr. Richard Nubling, Gas Works, Stuttgart-Gaisburg, Germany, and Adolf Krauss, Ludwigshafen a/Rhein, Germany. Apparatus for the distribution distillation of sewage sludge.

10,157. April 24, 1914.—Dated under International Convention Sept. 25, 1913.—Firm Maschinenbau-Anstalt Humboldt, Cologne-Kalk, Germany. Water purifying apparatus.

13,153. May 28, 1914.—Dated under International Convention June 2, 1913.—Dr. Carl Weidmann, 9 Am Hammer, Leichlinger-on-the-Rhine, Germany. Heating pipes with corrugated walls.

13,448. June 2, 1914.—H. E. Brown, 14 West Chestnut Street, Kingston, Ulster. Processes of treating silicious material to produce hydraulic cement and alkali therefrom.

13,539. June 3, 1914.—J. F. W. Griese, 49 Ferdinandstr., Hamburg. Hand paving rammers working with compressed air.

15,894. July 3, 1914.—Harold Hobson, 76 Russell Street, Dresden, Stoke-on-Trent. Flushing device.

15,910. July 3, 1914.—T. W. Bailey, 20 Clarendon Avenue, Leamington. Mode of constructing concrete or other similar walls and apparatus for use in the manufacture thereof.

16,030. July 4, 1914.—Dated under International Convention July 5, 1913.—Dr. Wilhelm Renner, Misburg, Hanover; Johannes Schmarje, 19 Nagelsweg, Hamburg; and Carl Hocke, Hamburg, Germany. Lime, cement, or like kilns.

16,202. July 7, 1914.—The Enamel Concrete Co., Securities Building, Des Moines, Iowa, U.S. Machine for making bricks.

16,207. July 7, 1914.—Nicholls & Clarke, Ltd., and Percy S. Nicholls, 6 High Street, Shoreditch. Covering means for apertures in door and window panes, &c.

16,531. July 10, 1914.—Thos. Barty, 82 York Road, King's Cross, London. Heating systems.

16,747. July 14, 1914.—T. B. Colman, 54 King Street, Brighton. Revolving doors.

16,940. July 16, 1914.—F. E. Colignon, 10 rue Melingue, Paris. Kitchen stoves and the like.

17,200. July 20, 1914.—Patrick McIlveney, Lake Road, Devonport, Auckland, N.Z. Shower baths.

17,247. July 21, 1914.—Dated under International Convention Jan. 29, 1914.—Harold Jarvis, 114 Adelaide Street West, Toronto. Water heaters.

17,876. July 28, 1914.—Dated under International Convention July 28, 1913.—Georges Hidoux and Julien Bernhein, 9 Boulevard des Italiens, Paris. Manufacture of bricks, tiles, and the like.

20,300. Sept. 29, 1914.—W. S. Young, 69 Canford Road, Clapham Common, S.W. Closet seat guards.

20,286. Sept. 28, 1914.—F. W. Ball, "Weeroona," Huntingtower Road, Malvern, Victoria, Australia. Electrically heating unit.

12,187. May 18, 1914.—Dated under International Convention May 20, 1913. Albert Crum, New Lynn, Auckland, N.Z. Machines for working clay and like material.

13,235. May 29, 1914.—T. K. Irwin, 72 Victoria Street, Westminster. Treatment of sewage and the like.

15,502. June 29, 1914.—L. K. Cheswright, 5 Indian Road, Crescent, Toronto. Flushing valves.

15,595. June 29, 1914.—Dated under International Convention July 7, 1913. Firm Riechhold Flugger & Boecking Hammerdeich 60, Hamburg. Process for the manufacture of oil varnishes and the like.

15,679. June 30, 1914 (April 30, 1914).—M. E. P. Chaboche, 33 rue Rodier, Paris. Water-heating apparatus.

16,185. July 7, 1914.—J. J. Lassen and V. F. Hjort, Imperial House, Kingsway, W.C. Apparatus for filtering liquids.

17,094. July 18, 1914.—G. A. Chaddock, 8 Staplands Road, Broad Green, Liverpool. Window sashes for ventilating purposes.

17,681. July 27, 1914.—Isaiah Hall, Whitehouse Street, Aston, Birmingham. Burners (more especially atmospheric gas burners of the Bunsen type).

19,561. Sept. 8, 1914.—S.O.S., Ltd., and E. W. Janson, 18 St. Swithin's Lane, E.C. Destructor apparatus for the treatment of fæcal or other sewage.

20,127. Sept. 24, 1914.—J. C. Carnegie, 113 Rose Street, Edinburgh. Draining board for use on sinks.

Any of the above specifications may be obtained from J. D. Roots & Co.

The Homeland Association have just issued two more of their splendid little guides. They are (1) Homeland Handbook No. 86, "Dartmouth, Totnes, and the River Dart," cloth 1*s.* net, paper boards 6*d.* net, with street plans of Dartmouth and Totnes and ordnance survey map of the district (scale one inch to the mile), by J. Lee Osborn; and (2) Homeland Handy Guide No. 33, "Barnstaple, the Gateway to North Devon," by Beatrix F. Cresswell, author of many Homeland books on the West country, 3*d.* net. The present forms an exceptional opportunity for progress in the object for which the Homeland Association was founded, namely, "the encouragement of touring in Great Britain." A most valuable incentive to that movement should be the guides issued by them at such very moderate rates and which are models of their kind.

The Council of the Royal Glasgow Institute of the Fine Arts having decided to hold the annual exhibition as usual, the receiving days for pictures and sculpture have been fixed for Friday, 20th, and Saturday, 21st of this month. The committees in charge of the hanging and arrangements are: Mr. David Gauld, Mr. A. B. M'Kechnie, R.S.W., Mr. James A. D. M'Kean, for pictures; Mr. James Gray, for sculpture; and Mr. J. Hamilton M'Kenzie, R.S.W., and Mr. Gray, for black and white work and architectural drawings. The exhibition will open at the end of September, and close about the middle of December. In addition to the "send-in" of pictures from artists, there will be a number of important and interesting loan works, among them a Gainsborough portrait ("Master Heathcote") which has never been exhibited before. This work is being lent by Lord Michelham, and is valued at £52,000.

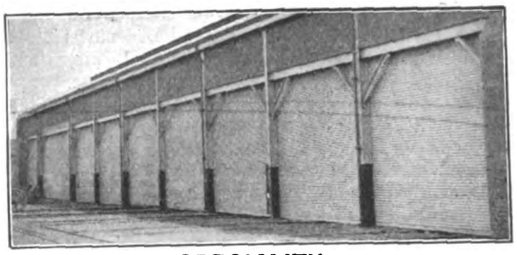
In Dunfermline Dean of Guild Court last week petitions were presented by the Scottish National Housing Company, Edinburgh, for warrant to erect seventy-one houses in blocks of various sizes, on ground belonging to the company near Rosyth. The houses will be of two storeys and of two designs, and the accommodation includes a living room, bath-room, scullery on the ground floor, and three bedrooms upstairs. Twenty of the houses will be rented at £20 to £22, and the others at £16 to £18. They will be tenanted by Admiralty employees. The Burgh Engineer said the houses represented a very distinct departure from the provisions of the Burgh Police Act as to thickness of walls and height of ceilings, but they were in conformity with the proposed Dunfermline town planning scheme. Dean of Guild Irvine expressed the gratification of the Court that such progress had been made, and said that they would put no obstruction in the way of quick building, because houses were very badly required. Warrant was also granted to the company to lay out a number of streets on the same land in connection with the houses. The streets will be completed as development proceeds. The total value of the houses is nearly £20,000.

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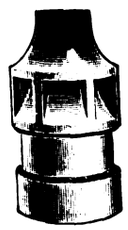
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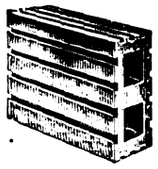
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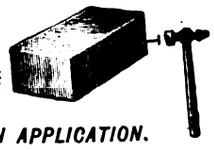
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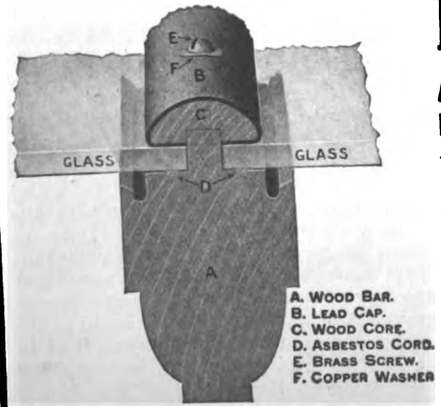


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THE ARCHITECT

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NEW COLLEGE, OXFORD.*

THE title of New College sounds now so inappropriate that it seems a pity not to return to the original name of Saint Mary's College of Winchester in Oxford, for an institution can scarcely be said to be new whose foundation dates back to 1379, when William of Wykeham, Bishop of Winchester, commenced the building of this college, of which the chapel was ready for consecration by the end of 1383, and the remainder of the buildings completed by April 14, 1387. New College has the distinction of being the earliest of the Oxford colleges to be laid out on a quadrangular plan, whilst the arrangement of its chapel was also a departure from previous dispositions in the six extant colleges founded before Wykeham's time.

Wykeham's chapel plan was new and essentially distinct in reality from that of its forerunner, Merton, which in conception is that of an uncompleted cruciform church, with choir and transepts opening through arches from the central tower. New College chapel and the two existing chapels modelled upon it, All Souls' and Magdalen, are, on the contrary, complete organisms of a form newly introduced by William of Wykeham. The plan is essentially distinct from that of Merton, and consists of a choir 103 feet long by 32 feet 6 inches wide, and a short nave 37 feet long of equal width, with aisles north and south, which give a total width of 80 feet to the ante-chapel. The choir and nave, being of equal width, are comprised under one roof, which is continuous, externally as well as internally, from end to end of the building. There is no chancel-arch nor other structural division between choir and nave. The aisles, which complete the ante-chapel, open into the nave, which they flank on either side, through an arcade of two arches. These aisles, as the axial ridgeline of the roof shows, are parallel and not at right-angles to the nave.

There can be little doubt that this chapel plan was the outcome of definite design and prevision on the part of Wykeham. He wanted, for one thing, to provide room for formal scholastic disputations, the conducting of which within church walls presented no violent incongruity to the mediæval mind, and, in the next place, to obtain ample space for making the solemn station in front of the Great Rood every Sunday and principal feast-day before the celebration of High Mass. Wykeham's foundation at New College comprised a priestly staff for whose use the normal three altars of a college chapel, viz. the high altar in the choir and the two against the screen at the choir entrance, would have been totally inadequate. His ante-chapel then, afforded space for at least four more altars than the older parallelogram-shaped chapel could accommodate, for two could be set against the east wall of each aisle. The advantage of this plan, once experienced, was such as ensured its prompt adoption by Chicheley at All Souls', and, later, by Waynflete at Magdalen.

The founder took care to embody in his statutes ample directions for the furniture and arrangement of the chapel. At the upper end of the chapel of our College," he wrote, "on the transverse wall or stone partition, which . . . . sunders and separates the said chapel from the hall, are to be placed an image of the most holy and undivided Trinity, *patibulum* of the Holy Cross, with a crucifix fastened thereunto, and images of the Blessed Virgin Mary and many another saint beside. Carved ornaments, moreover, and glazed windows adorned with divers paintings, and other sumptuous work, wrought with skill and enriched with various colours, are to be provided and set up in their several order with utmost devotion, for the praise, honour and glory of God and of His Mother aforesaid."

Iconoclasm commenced its ravages on these sumptuous works in 1547-48, and, though the rood and three side-altars were restored during the Marian reaction in 1559-60, destruction of altars and images again occurred. It was, however, consequent on the orders of Robert Horne, Bishop of Winchester, at his visitation on August 29, 1567, that the greatest injury was suffered by the art treasures of the college chapel. The bishop ordered "the imagery displayed betwixt the choir and nave of the chapel"—*i.e.* on the rood-screen—"to be removed and thrown down as far as the level of the tops of the choir-stalls; and that all and singular statues which used to stand there in time past should be consigned to the flames; and, furthermore, that all the ornamental work lining the eastern end of the choir of the same chapel should be abolished, and that, the walls thereof having been made plain and even with plastering, and the surface whitewashed over, sentences from the Holy Scriptures were to be written thereon."

To remedy the baldness of the defaced east wall, there was erected, about 1695, a huge timber fixture, gilded and painted, which was much admired for its ingenious deceptiveness, because it made the chapel look apsidal instead of square-ended. The erection was described as "the concave of a semi-rotunda in the Doric order, with a cupola adorned with curious mosaic work." It possessed, besides, columns of the Corinthian and Composite orders, whilst over the entablature hung a figment of starry clouds, thronged with angels and cherubs. This monstrosity was removed by James Wyatt about the end of the eighteenth century.

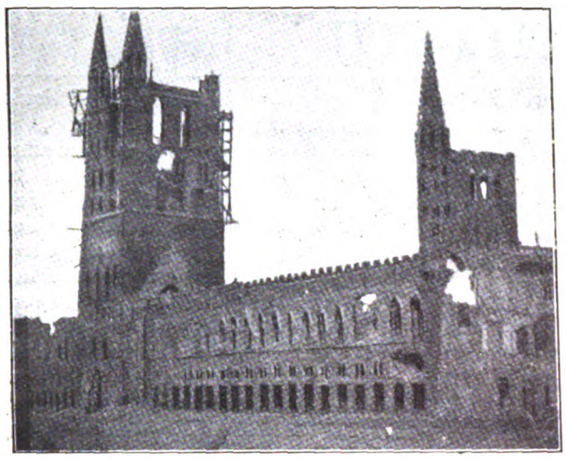
Wyatt, however, made other alterations less commendable. He demolished the original hammer-beam roof, substituting sham groined vaults of plaster. He also reconstructed "in the Gothick style in a good taste" the screen and organ-loft, as well as an extended range of stalls with lath-and-plaster canopies, painted "a warm white" and decorated with gold. These and other works left the chapel a travesty of its former beauty. Sir Gilbert Scott undid much of Wyatt's work, and his "restoration," largely conjectural, was unfinished at the time of Scott's death in 1878.

Greatly diminished in quantity by the iconoclasm of the sixteenth century, and dislocated by reconstruction at various dates down to 1900, the remaining ancient glass in the chapel is of supreme value for both beauty and antiquity, and from the fact that the frequent Latin inscription requesting prayer is not, as usual, "for the soul of," but simply "for" William of Wykeham, it would appear that it dates antecedent to the death of the prelate in 1404.

The hall adjoins the east end of the chapel, and is internally 79 ft. long by 32 ft. 6 in. wide and 50 ft. high. The original timber roof was destroyed by Wyatt, who substituted a flat plaster ceiling, which was removed by Sir Gilbert Scott and replaced by a new timber roof in 1866. The finest feature of the hall is its panelling, which, according to tradition, was provided by the

* See illustrations.

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THE CLOTH HALL, YPRES, AS IT IS.
From a photograph by a member of *The Architect's* staff on active service.

liberality of Archbishop Warham, and probably set up between 1526 and 1532.

The cloisters were erected by William of Wykeham between 1390 and 1400, and are separated from the west end of the chapel by a distance of nearly 17 ft. The explanation given for this arrangement is that Wykeham did not acquire the land on which they stand till it was too late to incorporate chapel and cloister.

At the north-east corner of the quadrangle stands the muniment tower, and from this, on the east side of the quadrangle, is the library, about 70 feet long. The greater part of the library was modernised by Wyatt, who added an upper storey; but two bays at the southern end remain which possess their ancient characteristics.

NOTES AND COMMENTS.

The work at Old Sarum, under the direction of the Society of Antiquaries, had to be brought to a somewhat summary end in 1914, owing to the outbreak of war, and has not been continued in 1915. The area between the cloister of the cathedral and the city wall to the north was found to be occupied by a large house, possibly the Bishop's. A section was also cut through the bank encircling the city outside the Norman wall. A complete report of these excavations will be issued as in former years to subscribers.

In October, 1914, Sir C. P. Hobhouse, the owner of the great fourteenth-century barn at Bradford, offered to make over the building to the Wiltshire Antiquarian Society without payment, on condition that the cost of the conveyance and of the necessary fencing were borne by the society, and that the necessary repairs should be executed within a reasonable time. As neither the Office of Works nor the National Trust were willing to move in the matter, and as the alternative was that the building would be pulled down, the committee considered it their duty to accept the offer, and to make every effort to save this remarkable building, which is such a prominent feature of Bradford. Mr. A. W. N. Burder, of Bradford, undertook to act for the society; and although it seemed hopeless to issue an appeal for money to members generally, he has, by sending the appeal to persons likely to be interested, especially in the neighbourhood of Bradford, succeeded in getting together a sum of £138 13*s*. When, however, the costs of conveyance and fencing (say £50) are deducted from this, the balance will go but a little way towards the complete repair of the roof and main timbers, which Mr. Brakspear has estimated at £775. It is thought, however, that if another £100 could be secured the building could at least be saved from the imminent danger of collapse which now threatens it. The committee appeals to all who wish so notable a building to be preserved to help, and Mr. A. W. N. Burder, Belcombe Court, Bradford-on-Avon, has consented to receive subscriptions.

The Local Government Board have issued a circular to local authorities, drawing attention to the need for organisation of labour, and the restriction of borrowing, with consequent postponement of many desirable works.

Mr. Long's circular says he feels it his duty to impress upon all local authorities the urgent need for strict economy in every branch of expenditure, whether capital or revenue. To assist the individual to meet increased calls in respect of Imperial taxation, it is extremely important that every effort should be made to reduce local rates, expenditure on such objects as parks, recreation grounds, libraries, street lighting, and watering.

The running expenses of all institutions require careful investigation, with a view to possible economies. In some cases considerable economies should be possible, but even small economies are valuable, particularly when they involve the freeing of labour for other more immediately important functions.

Mr. Long also suggests that, whilst not unduly relaxing the standard of public health administration, local authorities should refrain from requiring the execution of work the cost of which has to be borne by private individuals, unless the work is urgently necessary for the removal of nuisances or for the protection of health.

For example: The issue of notices for the making of private streets ought to be postponed. Even where some works are essential, it will be found practicable to arrange for repairs of a temporary character to be carried out by owners of frontages.

Every local authority which has not already done so, should appoint a committee to inquire what savings can be effected as regards expenditure out of local rates. Such committee could also do valuable work in connection with the consideration of estimates for rates.

The Board would be glad of reports of any savings local authorities have effected.

A Blue-book dealing with the water undertakings of England and Wales, and issued by the Local Government Board, shows, as regards every water undertaking in England and Wales, the powers of the different authorities, the authorised limits of their supply area, and the places actually supplied, the sources of supply, their nature and efficiency, and the particulars of the works and the quantity and quality of the water. There are also given the area and population and number of houses supplied in each district.

The Local Government Board Geological Adviser, Mr. J. R. Hill, the return states, is preparing a memorandum on the underground and surface supplies of the kingdom. The main facts brought out by the return are summarised as follows:—

Water is now supplied by a piped service practically to every densely-populated place in England and Wales, and most of these supplies are wholesome and adequate. There are still, however, a very large number of rural parishes, some small urban districts, and many outlying houses in larger urban districts, which depend for their water on private sources.

Though some considerable undertakings are still in the hands of companies, the greater part of the population which has a piped service of water is now supplied municipally.

The powers of the general law have not sufficed to give Local Authorities or companies all the powers necessary for their undertakings. The chief defect in the general law is that it provides no machinery for taking water rights compulsorily.

A great many rural parishes have been put by special Acts into the limits of undertakers who do not supply them, which, in view of the provisions of the Public Health Act, 1875, and Section 35 of the Waterworks Clauses Act, 1847, may seriously prejudice them in obtaining a supply on terms which they can afford.

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In the case of some undertakings, large additional quantities of water are available beyond the amounts taken and distributed. In some instances a great deal of the water taken by the works runs to waste.

Fresh legislation, the return states, has been suggested on the subject of water supply. It is recommended:—

That Rivers Boards should be established to control the watersheds of the various rivers of England and Wales, the prevention of pollution of their waters, and the management and distribution of the water supplies derived from them and of the underground supplies of their areas.

That the Local Government Board should be empowered to make Provisional Orders for the compulsory acquisition of water rights.

That in schemes for supplying towns from particular river basins, provision should be made for supplies to be furnished to neighbouring villages.

That Section 52 of the Public Health Act, 1875, should be amended so as to safeguard further the rights of Local Authorities with regard to parts of their districts placed within the limits of statutory companies, and not supplied by them.

That Local Authorities should be empowered to make by-laws regulating the construction of shallow wells.

That Local Authorities should be empowered to make by-laws as to the provision of proper water fittings.

That it should be made the duty of the Local Authority to obtain orders to close polluted wells.

That Local Authorities should be empowered to provide, or to cause to be provided, a supply of water for a group of houses, and to apportion the expenses as they deem just among the owners having houses within a reasonable distance of the source of supply, with an appeal to the County Council or to a Court of Summary Jurisdiction, in place of the provisions in the Public Health (Water) Act, 1878.

That owners should be compelled to lay on water where a pure and wholesome piped supply is provided.

That further power should be given to prevent the occupation of a new house until a proper water supply is provided.

That County Councils should be empowered to combine contributory places in different sanitary areas for the joint provision of a supply of water.

The recent strike of some 3,000 workmen engaged in the erection of a thousand cottages at Well Hall, Woolwich, for the convenience of Arsenal workers, is typically illustrative of the attitude of the British working man. The demands were for (1) the removal of a general foreman employed by Messrs. Leslie; (2) the reinstatement of the discharged section foreman; and (3) a general improvement in working conditions. A representative of Messrs. Leslie was waited upon by the delegates of the trade unions concerned, and he promised to investigate the matter fully that afternoon on condition that the men returned to work at once. The delegates were in favour of accepting this offer, but the men pledged themselves to remain out until their demands had been granted. They agreed, however, to send a further deputation to wait upon Messrs. Leslie's representative. At the conclusion of this interview it was reported that the general foreman was to be transferred to an outlying section of the work, the discharged section foreman was to be reinstated, and the men unanimously decided to resume work. Thus we see that these workers in the building trades were prepared to delay work necessary for the better prosecution of the war on an apparently trivial grievance, that they flouted the action of their own representatives, that they insisted on an interference with the management of their employers' business. Presumably Messrs. Leslie had a good reason for the discharge of the section foreman, and for the confidence they placed in their general foreman. Fancy a regiment at the Front insisting upon the retention of a colonel removed by the War Office and the discharge of a brigadier-general. How can we hope to succeed against a nation organised and controlled as is Germany whilst this spirit is abroad amongst those who are engaged in any capacity on work that affects the prosecution of the war?



A STREET IN YPRES, TO-DAY.

From a photograph by a member of *The Architect's* staff on active service.

It is almost a relief to learn that American business men are still sufficiently human to fall victims to the week-end habit. Such frailty was more than we dared expect. Their supposedly tireless application acted as a silent reproach to the amiable sociability—we shall not call it slackness—which is gaining so firm a grip on this side of the Pond. We learn on the authority of the *American Architect* that no less than ten years ago several New York firms began to close their offices the whole of the Saturdays during the summer months. The movement is spreading each year and "a larger number of New York architects are closing their offices from Friday till Monday during June, July and August this year than ever before. Only one office has, to our knowledge, returned to the accustomed half-holiday after an unsuccessful trial of the more modern plan." In some instances the closing of the office for the entire day on Saturday has been accomplished without actual loss of working hours per week, by the simple expedient of extending the office hours of each of the five preceding days of the week a sufficient amount to offset the three hours previously devoted to office work on Saturday. Whether this latter plan is to the advantage of all concerned there seems to be some difference of opinion. Champions of the week-end habit have many powerful arguments concerning the benefits arising out of its cultivation and even as to the commercial advantages to be gained from it. The only danger seems to be that it is sometimes abused by being made over-elastic. To return with renewed energy each Monday morning to the drawing-board after two days' rest is well, so long as the return is close to the normal hour.

In the current number of the "Antiquary" there appears the first half of a picturesquely written paper by Mr. R. A. H. Unthank on the London Inns or Hostels of Country Abbots and Priors—a subject of which very little is heard. It would be interesting to know how many there were in London during the thirteenth and fourteenth centuries. Probably the total was large if an Augustinian priory no larger than that of Tortington, in Sussex (which never contained more than eight canons), possessed one behind the church of St. Swithin, London Stone. It was bequeathed, we are told, to the canons in 1286 by Sir Robert Aguylon, great-grandson of London's famous first Mayor, whose residence it had once been. A quaint dispute is described in connection with a more important hostel owned by the Abbots of St. Albans, which for some centuries stood on part of the ground where is now the Bank of England. In 1435, says Mr. Unthank, "on the east side of the inn, its privacy was disturbed by three small windows belonging to a certain

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Lombard. About these windows the Abbot complained, but his address went unheeded, and in consequence the proverbial teacup storm was raised. Finding his neighbour had no intention to abate the nuisance—and the Lombard seemed to have reason on his side—the Abbot caused the offending windows to be boarded up without so much as any notice given. Against this overbearing action the people of the parish rallied to the injured Lombard's support. Gedney (the draper Mayor of 1427, who a few years later was to do public penance for marrying a widow, and that a lord mayor's, who had 'taken the mantell and ring and the vow to live chast to God for the tearme of her life') headed the throng. They tore down the oak planks amid loud and indignant recriminations against the Abbot, who meanwhile had despatched a messenger to call the Mayor. In response a posse of influential citizens arrived, including the Mayor, several aldermen past the chair, the chantry chaplain, and some other burgesses." Presumably these were the special constables of that day. It is most unfortunate that the records fail at the crucial point and we are abruptly denied knowledge of the end of the affair. It is certainly surprising to learn that no chapels were permitted in these hostels; and that even portable altars were only allowed on some very special reason for the privilege being shown. An exception, however, was made in the case of the Abbots of Ramsey.

WAR ITEMS.

NOTICE TO ALL ARCHITECTS.

The Executive and General Purposes Committee of the Architects' War Committee have been considering in what way architects can most effectively promote the objects which the Government seek to obtain by the formation of the National Register.

They strongly recommend all architects, when filling up their registration forms, to insert information under the following heads in answer to the questions asked under Clause 4 (1) (c.) of the National Registration Act:—

1. State in what branches of construction you have specialised.

2. Give particulars, as briefly as possible, of the most important works on which you have been engaged as architect or otherwise.

3. Give particulars of any personal experience you may have had—(*a*) in the organisation of workers, (*b*) in the control of workers.

4. State what you could do if given an opportunity of rendering professional service to the Government.

(*a*) *Paid Work.*—State whether you could offer your entire services continuously, or if not, what portions of your time you could offer (days or hours per day).

State whether you could go to any locality, or if not, in what district you could work.

State whether you are prepared to go away for short periods.

State what scale of payment you would be willing to accept.

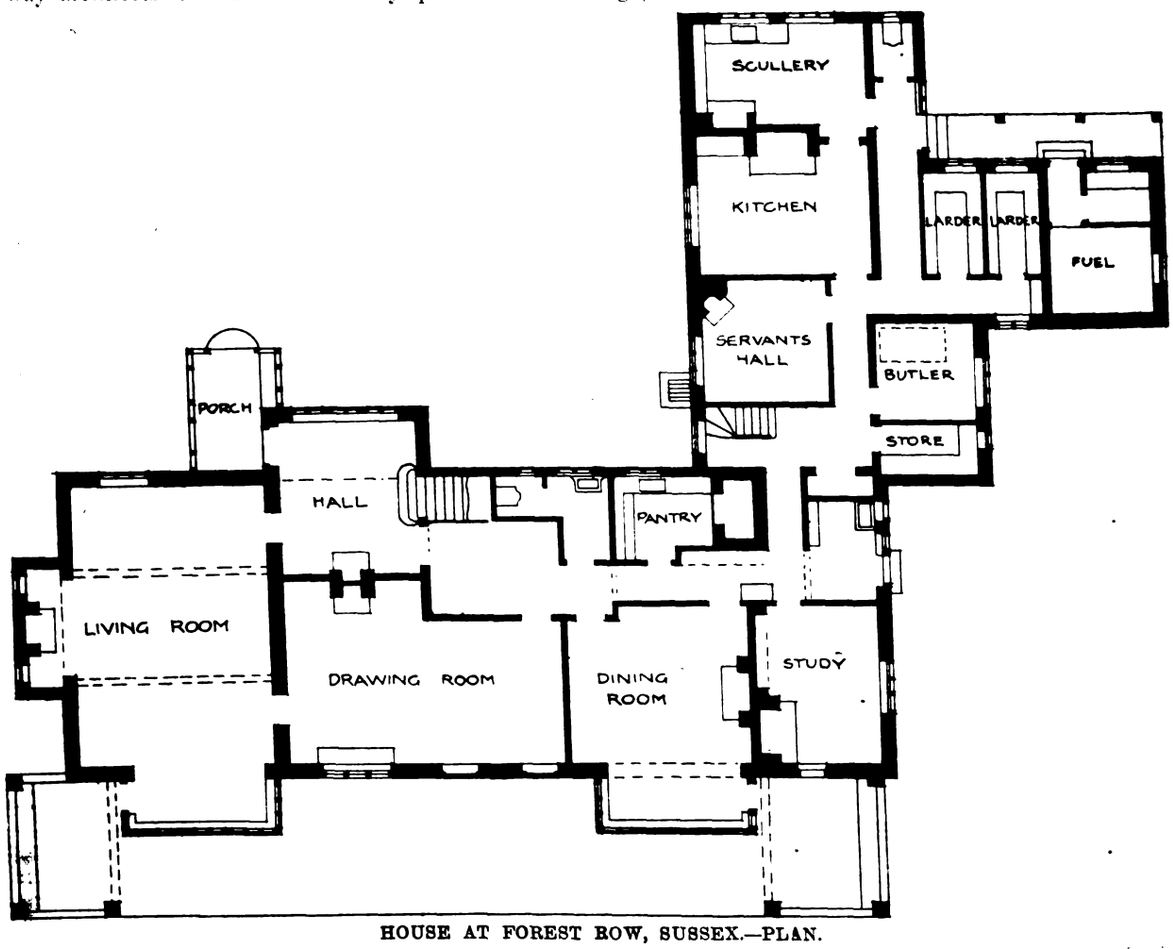
(*b*) *Voluntary (unpaid) Work.*—State what portions of your time you could offer, and in what district you could work.

Note.—(*b*) is merely a suggestion in case it is desired to offer gratuitous service.

ILLUSTRATIONS.

HOUSE AT FOREST ROW.

The house at Forest Row was recently erected from the designs of Messrs. Gerald Unsworth & Inigo Triggs. Parts of a former house were incorporated in the design, and the house consists of a large living-room, drawing-room, dining-room, and morning-room, with kitchen offices on the ground floor, and fourteen bed and dressing rooms on the floors above. The hall, living-room, and dining-room are panelled in old oak; the site of the house particularly lent itself to the planning of the interest-



HOUSE AT FOREST ROW, SUSSEX.—PLAN.

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ing garden, being upon sloping ground with a stream passing through. Our view shows the sunk garden with covered fountain before the south front of the house, and from this point a water alley with a series of basins arranged upon different levels conducts the water to the lower terraces of the garden, including a picturesque well-house and garden-room approached by a pergola of spiral brick columns. Part of the stream has been diverted into a large water garden with lily tanks. The contractors were Messrs. James Longley & Co., of Crawley; Messrs. Rawlings Bros., electrical engineers; Messrs. Rosser & Russell, hot-water engineers; and Messrs. Story, of Kensington, were responsible for the interior oak panelling.

HOUSE AT LIPHOOK.

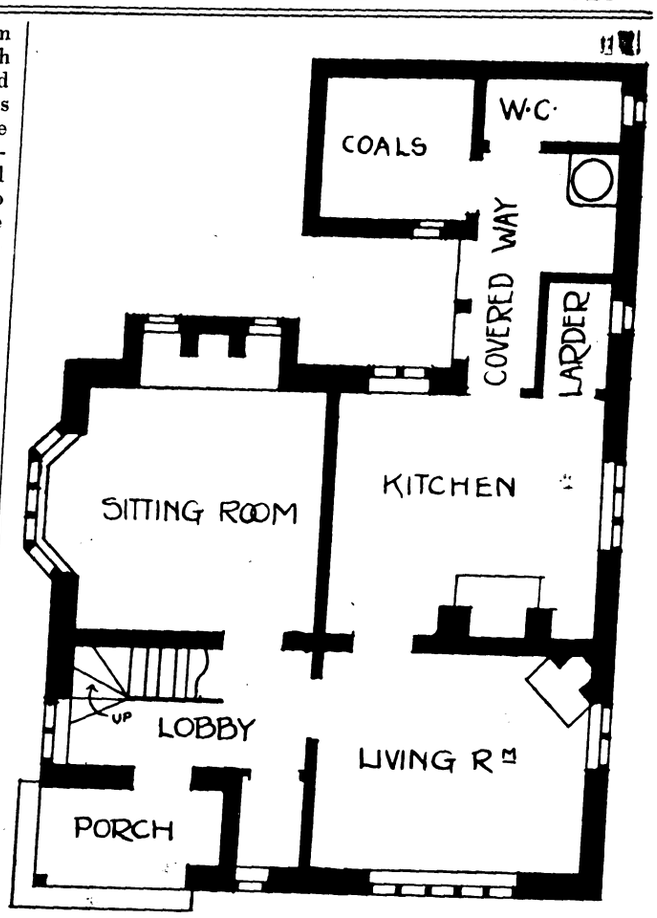
THIS house is situated on the main Portsmouth Road at Liphook. The stone walls and tiled roof were constructed from the materials of a group of derelict cottages that formerly occupied the site. The ground floor has three reception-rooms, including the entrance hall used for dining, and the usual offices, and above there are six bed and dressing rooms. The architects, Messrs. Gerald Unsworth & Inigo Triggs, have adopted a traditional style of Hampshire building, and they also prepared the plans of the gardens, which are set out in enclosures divided by yew hedges. Messrs. Fry, of Godalming, were the builders.

COTTAGE AT STEEP, PETERSFIELD.

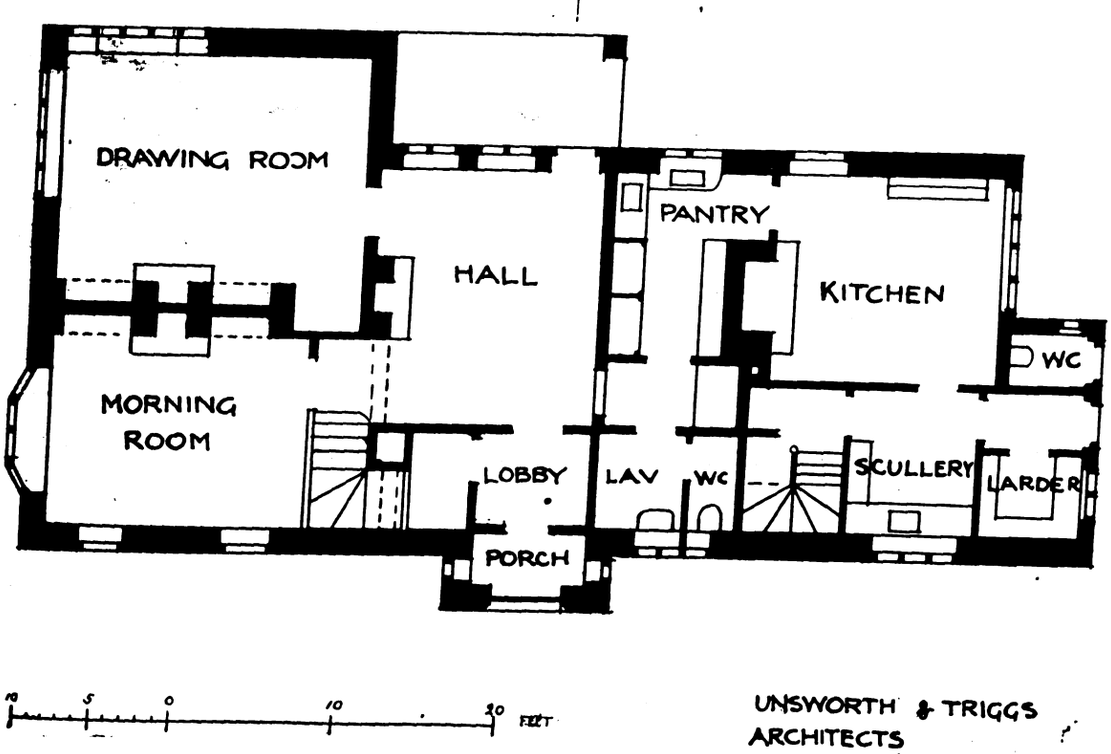
THIS cottage was recently built from the designs of Mr. Gerald Unsworth with materials obtained from the pulling-down of an old mill that formerly stood near the site. It consists of two reception-rooms with kitchen and offices on the ground floor, and four bedrooms above.

OXFORD COLLEGE SERIES.—NEW COLLEGE. Nos. 150 AND 151.

WE commence this week our series of illustrations of New College, of which an account is given in our leading article.



COTTAGE AT STEEP, HANTS.



HOUSE AT LIPHOOK, HANTS.

THE British Vice-Consul at Bangkok (Mr. H. Fitzmaurice) reports (in the "Board of Trade Journal") that the bulk of the cement now imported into Siam comes from Denmark and French Indo-China. Recently, however, a firm at Bangsue, near Bangkok, commenced the manufacture of cement, and the annual output of this new works is estimated at 120,000 barrels or 20,000,000 kilogs. (about 44,092,000 lb.), a quantity very nearly equal to the average importation of cement into Bangkok during the last five years. The British Vice-Consul adds that if this local factory is able to produce the quantity and quality of cement its promoters expect (as to which some doubt is expressed), and at the same time to compete in price with the cheap cement now imported from French Indo-China, the importation of cement into Siam may practically cease to exist.

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THE ENGLISH COUNTRYSIDE.*

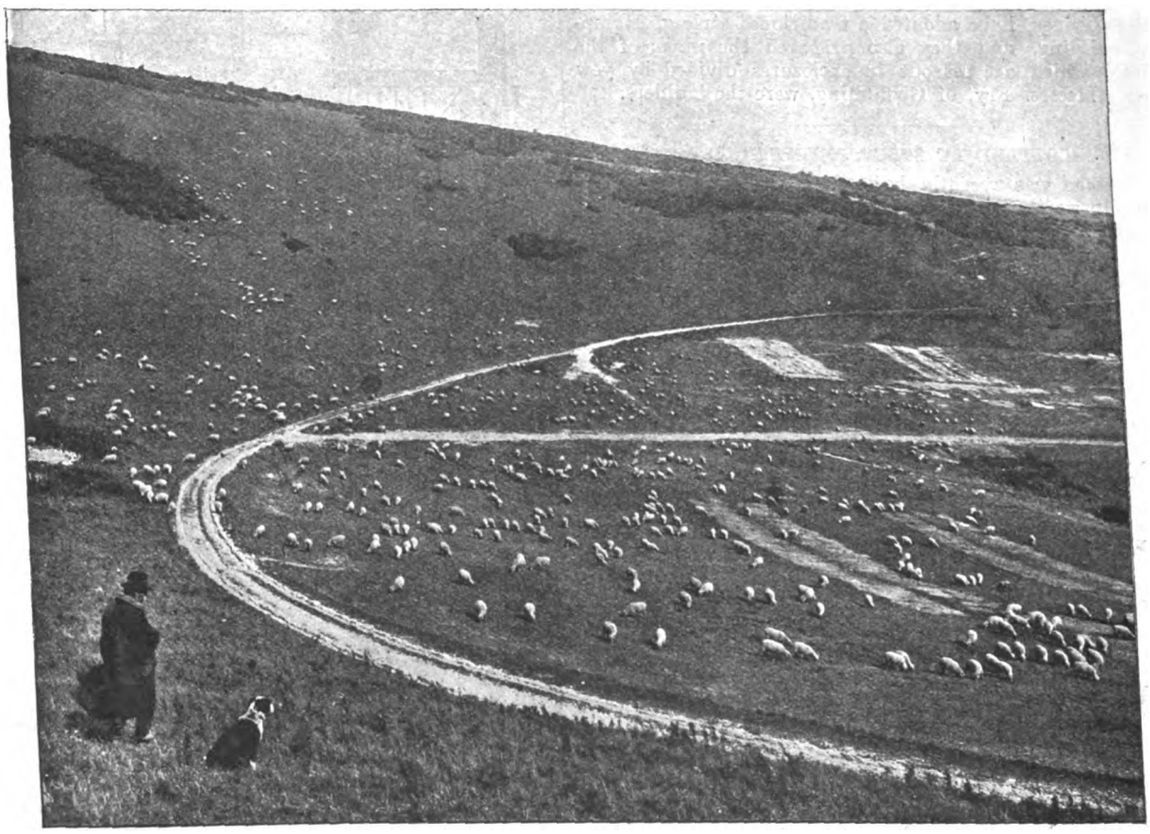
If Nature is a book which is sealed to many people, there are far larger numbers who, while delighting in opening it, are unable to read a word of the text and can do no more than mutely gaze at its beautiful pictures. It is a curious fact that so few of us can with any ease put into words the very genuine pleasure which a fine view, or still less a noble building, affords. When such an attempt is made the result generally proves so discouraging and is almost always so unpleasantly self-conscious that it is not persisted in. One obvious reason for this backwardness in the matter of facile self-expression is that the necessary qualities have never been developed. Particularly are detailed observation and analysis needed. To say, and mean, "I like this view" comes readily enough. Very few go on to reflect what it is that particularly appeals to them. Of course it would be an unmitigated nuisance if we were all to rhapsodise vocally over each primrose by the river's brim and fall into the kind of extravagances which Gilbert pilloried in "Patience." Of that there seems no danger for a long time to come.

Mr. Hilaire Belloc, in one of his earlier essays, deplores the long time which passes before man discovers the magnitude of his inheritance. How many men, he asks, have discovered before thirty what treasures they may work in England's air. "She magnifies us inwards and outwards; her fields can lead the mind down towards the subtle beginning of things; the tiny iridescence of insects; the play of light upon the facets of a blade of grass. Her skies can lead the mind up infinitely into regions where it seems to expand and fill, no matter what immensities." Unfortunately not even at thirty is it given to everyone to make this wonderful discovery. Consequently each of these unfortunates goes to the grave without any idea of the treasure they were heir to and which would have been theirs for the asking.

This mental blindness and deafness to the beauty which is on every side could, we believe, be removed in most cases in childhood or early adolescence by a little care. Perhaps the best time would be during school days, when the mind is beginning to glimpse so much of its own accord. Both formal and informal brief talks by a master, for instance, before and during a country walk should teach the pupils to open their eyes to the wonders about them, and yet not interfere with the pleasure of the walk or intrude the less pleasant air of the classroom into the highways and byways. Probably there would be a suspicion of priggishness at first. But this should die down when it was noticed that no one seemed a whit the less human or natural for the new learning. Such early tuition as this must make it easy later to impart definiteness to what is otherwise a formless sentiment of admiration whether it be for the song of birds, the strength of a tree, the colour and shape of a wild flower, the legend of a countryside or the history of a monument.

The multiplicity of points of view from which the country we are privileged to live in may be regarded is one of the marked impressions left by Mr. Ernest C. Pulbrook in his chapters or essays on "The English Countryside." The author seems to fear that although appreciation of rural England is on the increase, there is danger of a reaction unless what is now a fashion gets a real grip of the public and becomes a habit. This should be no difficult task, for love of the country must still be in the very bone of the race, despite an ever-increasing tendency to crowd into our cities and towns. Washington Irving declared many years ago that the English are strongly gifted with the rural feeling. They possess, he said, "a strong sensibility to the beauties of nature and a keen relish for the pleasures and employments of the country. The passion seems to be inherent in them."

The book now under notice is just of the sort to assist in a permanent revival of the Englishman's love for his countryside. The author's avowed object is to place simply and brightly before the everyday man the interest of the common things to be found all over the country and to attract his attention to the wonderful past of England. The variety of aspects under which the subject can be treated is shown by the title of the nineteen chapters. They include The Bulwarks of England, Up Quiet Creeks, Running Waters, Ancient Bridges, The Footpath Way, Wayside and Market Crosses, The Village Green, Old World Towns, and The Awakening of Nature. It is, indeed, in this variety that the book's chief weakness would seem to lie, for it touches on a thousand points of interest but cannot spare the time to elaborate one. So long as the curiosity of the reader is aroused sufficiently to encourage him to investigate more fully for himself, all is well.



From *The English Countryside.*] [By Ernest C. Pulbrook (B. T. Batsford, Ltd.).

"A SOUTH DOWN SHEPHERD AND HIS CHARGES."

* *The English Countryside.* By Ernest C. Pulbrook. (London: B. T. Batsford, Ltd. 7*s.* 6*d.* net.)

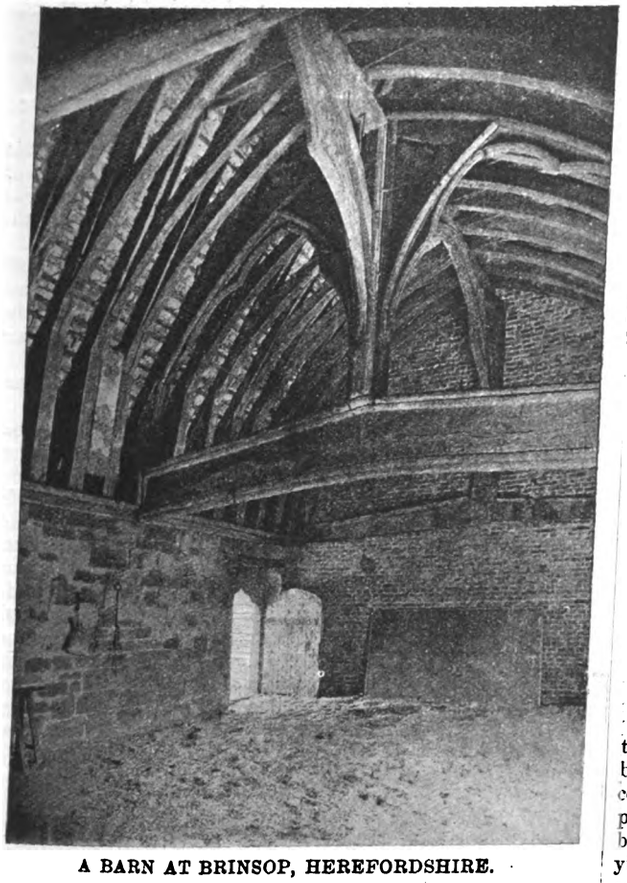
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The author in a modest foreword disclaims any pretension to originality or learning, and offers the book "to the ordinary man as an exposition of the ordinary things that anyone may find for himself without haunting museums or poring over musty documents." Mr. Pulbrook has gleaned his knowledge from so many sources and has digested it so well the reader must wonder how leisure was found to visit so much of the countryside. Of course it would not be at all difficult to put together a readable book on this subject without a wider range of view or deeper observation than the study window affords. But from the internal evidence we believe and hope Mr. Pulbrook has not worked on these lines, and that his enthusiasm is genuine. One of the surprising, and not least pleasing, things about the pages is the absence of quotation marks. The temptation to "lift" passages from the best authors (of course with due acknowledgment), from picturesque writers, or high authorities, who always seem to have said everything in the only best way, must have been very great. That Mr. Pulbrook did not succumb to it indicates the possession of a strong self-reliance. Curiously the opening two pages might suggest the book to be chiefly made up of clippings strung together on a slender thread of the author's own words. For it happens that he almost at once draws upon Prince and William Morris. But the author very quickly gets into his stride and walks alone. The characteristic sentence from the first worthy may be repeated here, because it very strongly suggests the modest spirit and the enthusiasm animating the whole book. Says Prince: "I would not be thought to speak so bold a truth of my country out of vanity or ostentation; but let it be to the glory and praise of the great God, who has signally blessed us and laid so much the greater obligation on us to gratitude and obedience."

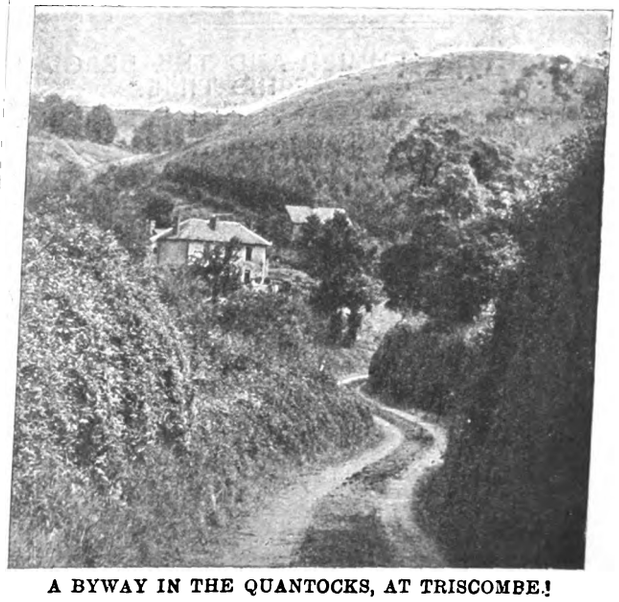


From *The English Countryside.*] [By Ernest C. Pulbrook (B. T. Batsford, Ltd.)

"SPRING DAWNING IN THE FIELDS AND BOUGHS: CHERRY BLOSSOM NEAR THE CHALFONTS."



A BARN AT BRINSOP, HEREFORDSHIRE.



A BYWAY IN THE QUANTOCKS, AT TRISCOMBE.

Besides escaping the temptation of overmuch quotation, the author studiously avoids disparaging comparisons between this country and any other, or between any two counties. He declares that it is impossible to make comparisons in so much diversity. Yet there must be one place beloved to him over all, one facet of the diamond which yields him an especially fascinating sparkle. The reader can amuse himself by endeavouring to make the pages yield up the secret as to which is Mr. Pulbrook's favourite part of England. The preface is addressed as from Willesden Green, and therefore affords no clue. He certainly commits himself, in referring to the differences of our sea coast, to saying "best of all are the granite cliffs of Cornwall and

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the towering seaward hills of North Devon, where the clothing of verdure sweeps unbroken to the waves." Indeed, there are several such indications of a very warm regard for that particular part of the West of England.

One of the objects of this book is, as already mentioned, to indicate the extraordinary interest which the countryside possesses. Another is to put on record some of the features doomed to extinction under the cruel heel of modernity. "The Passing of the Mill" is one of those melancholy chapters. Mills are doomed. Not even the halfpenny paper which discovered Standard Bread could save them, although it did give them a momentary new grip on life. And what a loss our mills would be! Fortunately many are still with us, and the wise will go to see them often, never passing one by without a sympathetic glance. And if he reads Mr. Pulbrook's chapter he will have some understanding of all they stand for.

A chapter which is all too short is that devoted to shepherds. It is a pity more of his lore is not set down, for it is inaccessible to most people who lack the time to break through the usual reserve and taciturnity of the class. Most readers would like to know more about men who are buried with a little piece of wool in their coffins so that when the Day of Judgment comes they can account for their absence from church on Sunday. In a subsequent chapter is the neat epigram, "Roads give us acquaintance with the country, footpaths give us its friendship." Also it contains this pleasing conceit: "We can never tell a footpath by its beginning or its end; in this it resembles an adventure. A man starts on it without thought, and its end is an anticlimax, while those who witness the beginning or the end know nothing of the great happenings between." The whole book is very pleasantly written, and has come trippingly off the pen. Its author has read much and travelled, and now puts the whole fruit of it into a nutshell.

A book of this character may be made or unmade by its illustrations. In this case they are, with one signal exception, taken from photographs. There are nearly 130 of them, and doubtless represent the pick of many hundreds. Some are better than others, but the general level is very high. Many are extremely beautiful, and have been worthily reproduced. But the drawing by Mr. A. E. Newcombe of Streatley Mill, Berkshire, which serves as a frontispiece is so delightful that it qualifies one's admiration for even the best of photographs.

CONSTANTIN MEUNIER AND THE BELGIAN SCULPTORS OF HIS TIME.*

By Paul Lambotte, Director of Fine Arts in the Belgian Ministry of Science and Art.

On March 11 I had the honour of lecturing before the members of the Royal Society of Arts on the evolution of painting in Belgium during the nineteenth century. It occurred to me that that lecture demanded a pendant in the shape of a lecture devoted to the sculpture of my country during the same period. It is, I consider, a patriotic duty to try and throw some light on this beautiful school whose fame has leaped beyond its narrow geographical confines. I have taken as the title of this discourse "Constantin Meunier and the Belgian Sculptors of his Time," because the great figure of Constantin Meunier dominates the whole school, and his work is universally known and appreciated. But I do not wish to isolate Constantin Meunier from all those who have led up to, accompanied, or followed the brilliance of his art. My task will be less complicated than with the painters, the number of notable sculptors being considerably less, and I shall be able to give myself the pleasure of dwelling a little more on each personally.

Sculpture is an austere art whose development is slower than that of painting. A school of sculpture only reaches its best some time after painting, in the same country and under the same economic conditions, has become well established. Sculpture is associated with architecture, and at first is subordinate to it. It is only in the course of time that it assumes a separate entity. The work of art of small dimensions, destined for the ornamentation of life and suitable to the taste of the amateur, is naturally a "something framed" which may be suspended from the walls of the house. Few people go beyond that point and come to an understanding of sculptural work. This work, deprived of any help from harmonious flattering colour, eloquent by the less obvious beauties of contour, of planes, of bulk, remains dead and indecipherable in the eyes of most people. From time to time the marble, bronze, or terra-cotta bust is preferred to the painted portrait, and this preference is already an indication of completer artistic culture, or of a more refined instinctive taste.

Compared with paintings, pieces of statuary are, by their weight and bulk, less movable; they are difficult to pack, to despatch, and to exhibit. Those which are monumental are of their very nature fixtures. The participation of sculptors in exhibitions is always difficult, limited, and expensive. It is for such reasons that Belgian sculptors are not so well known to the foreigner as our painters, and it is also for this reason that it is desirable to make them better known.

Constantin Meunier is an exception. Unusual circumstances and some good luck even in his lifetime established his reputation outside Belgium. His colleagues have not been so fortunate.

The other day I took up the story of Belgian painting at the moment when Belgium in 1830 was constituted an independent kingdom.

The history of sculpture may perhaps be treated on parallel lines. However, it must be remembered that there lived at Brussels quite at the end of the eighteenth century a sculptor of very considerable talent, Godecharle, to whom the school which followed him obviously owes a very great deal. I do not intend to devote much consideration to a study of Godecharle, who received a cosmopolitan education, and whose work showed a happy assimilation of various influences. But I wish to introduce his name merely as a jumping-off place, before coming to those of sculptors like Mathew Kessels, Joseph and William Geefs, Eugene Simonis, Charles Auguste Fraikin, to mention only the most interesting.

We owe to the two Geefs, to Simonis, and to Fraikin works which are by no means negligible. It is William Geefs who is the sculptor of the statue of General Belliard placed in the Rue Royale at Brussels, for which the panorama of the Lower Town acts as such a beautiful base. He also modelled the monument in the centre of the Place des Martyrs, the mausoleum of Frederick de Merode in the cathedral, and several figures of Leopold I.

Eugene Simonis is the creator of the beautiful equestrian statue of Godfrey de Bouillon, also of the two lions at the base of the Colonne du Congrès, and of the pediments at the Théâtre de la Monnaie.

And Fraikin has given us the monument of Counts Egmont and Hoorn which stood for a long time in front of the Maison du Roi, Grande Place, and was at the time of the restoration of that delightful spot transferred to the square of the Petit Sablon under the shadow of the trees.

These works must not be seen at too close quarters. It would be idle to claim for them sensibility of surface, joyousness of execution, or charm. But they are effective where they stand in the general decoration. They possess both scale and the right silhouettes.

But we must tarry no longer before proceeding at once to more interesting artists.

Paul Bouré was the first in Belgium to put into his work a touch of modernity by imparting to each surface a real value and an interest of execution.

Paul de Vigne fills a unique place in the school. He stands as it were as the climax of opposing tendencies, of foreign and local influences which were somewhat contradictory. He is both classical and modern at the same moment; he possesses a taste for beauty, an instinct for harmonious and pure forms; with this he commingles a vivid sense of life, a very modern understanding of movement, of action, of the transitory in supple and easy-flowing gesture. Influenced by the study of the Florentine sculptors he recalls sometimes their elegance and their eurythmy. Both his statues and his busts of women and children have their prototypes in the work of a Verrocchio and of a Donatello; but when examined closely it will be seen how with De Vigne the concern for the motionless form has given place to a zest for life. The eyes and mouth are treated as a painter treats them when he foresees the play of light on the contours and the contraction of muscles in movement, a play of smooth and swelling surfaces, shuddering and quivering, which already foretells Rodin. If Paul de Vigne modelled popular figures, realistic types of energy or endurance, he obtained his effects by simple and legitimate means by a perfect grasp of volume and planes; in them is recognised instantly the work of a born and gifted sculptor. De Vigne worked in Rome, Paris, and Brussels,

* From a lecture delivered in French before the Royal Society of Arts.

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though chiefly in the latter city. He was born at Ghent, and the old town has honoured its sculptor son simultaneously with his friend and fellow-citizen, the painter Liévin de Winne, in a very touching joint memorial at the Musée de Gand. The sculptor was the author of many important groups, such as that of Breidel and Coninc erected in the Grande Place of Bruges (which, while possessing a popular attractiveness, is without any taint of vulgarity), and of the symbolic "Le Génie de l'Art" on the façade of the Musée Ancien at Brussels. But he is most completely himself in a series of delightful busts of women, children, and young men where his instinct for beauty impelled him to beautiful representations, neither insipid or affected, and of a very admirable technique.

Among his contemporaries were three Belgian sculptors, also dead, who call for some notice—viz., Julien Dillens, Joseph Lambeaux, and Charles Van der Stappen. Julien Dillens did not yield the full measure of his great gifts, and never reached the summit of his power. He was one of Life's unfortunates, and died too early, or at least before he had had time to attain his ideal. Dillens was especially gifted in the direction of monumental decoration. All the figures which he created in association with architectural work were picturesque and happy; they show proportion and harmony, as well as the lines necessary to make them fit their position and decorate a facade or an attic. Possessed of imagination and knowledge, he was able to improvise pleasing and decorative forms. Dillens modelled statues and caryatides for several buildings in Brussels, as well as cemetery memorials and portraits.

Joseph Lambeaux has enjoyed in Belgium an extreme notoriety. Up to the time when Constantin Meunier became finally accepted he was undoubtedly the most popular sculptor in Belgium. His reputation was such at one time that the Belgian Government commissioned him to execute, according to a design he had prepared, an enormous marble bas-relief representing "Les Passions Humaines." A building was specially erected in the Parc du Cinquantenaire at Brussels in order to display it. Laughable squabbles later arose between the sculptor, the architect entrusted with the construction (a man of great talent), and the Government, who, after having commissioned the work, became alarmed by the sculptor's daring, and for a long time kept the building shut. It is a strange work, undoubtedly badly composed, in which the sensual passions completely predominate over the intellectual ones; but of which certain parts are truly remarkable. Several very vigorous groups of "Lutteurs" also came from him. In his later years the artist became a little too preoccupied with lustful and unrestrained subjects. His "Ivresse," "Folle Chanson," and "Faune Mordu," and others, small in scale and attractive commercially, caused scandal which their merits as compositions or as modelling could not atone for. Nevertheless, if all these are discounted, there still remain some few works of his which are of the very first class, and extraordinarily individual.

In Charles Van der Stappen individuality was less marked, and one feels that he was vacillating between various influences. After returning from Italy, he at first created works which had an almost Florentine charm; his "Jeune Homme à l'Epée" in the Brussels Museum and his "David" show the gradual influence of his contemporaries; and especially of Constantin Meunier. He sometimes recalls also the French sculptor Jean Carriès. Van der Stappen is most himself in certain very beautiful busts, such as "Le Poëte Verhaeren," "La Zélandaise," and "Le peintre Sacré."

These three artists were the contemporaries of Constantin Meunier, and were all somewhat put in the shade when success finally came to that master.

(To be concluded.)

EXAMINATIONS IN ART, 1915.

The Board of Education published last week the customary list of candidates who passed the examinations in 1915, together with the report of the Examining Committees. From these reports we here quote extracts.

Examination in Drawing.

The members of the committee for the above were as follows:—Mr. S. J. Solomon, R.A. (Chairman); Mr. H. A. Bowler, H.M. Inspector of Schools; Mr. W. Robert Colton, A.R.A., R.B.S.; Mr. G. P. Gaskell, R.B.A., R.E., Principal of the Polytechnic Institute School of Art, St. Marylebone, London; Professor A. B. Pite, F.R.I.B.A., Professor of Architecture at the Royal College of Art; Professor E. S. Prior, M.A., A.R.A., F.R.I.B.A.; Mr. J. Byam Shaw, A.R.W.S.; Professor A. Thomson, M.A., M.B.; Mr. F. Derwent Wood, A.R.A., R.B.S., Hon. A.R.C.A. (Lond.).

Drawing from the Life, from the Antique and from Memory.—The examiners are of opinion that there is a slight improvement in the life drawings. The faults in construction, so evident in the examination held last year, are less noticeable.

The antique drawings submitted this year are fairly satisfactory on the whole, and there are fewer very bad drawings.

The drawings from memory of objects of natural history with few exceptions show a deplorable lack of observation; but the observer unassisted by the requisite knowledge is at a disadvantage. The examiners advise the study of the anatomy of the animal—preferably the horse.

Similar principles govern the construction and forms—that is the skeleton and muscular system—of most four-footed animals. A few lessons in comparative anatomy are advisable.

Facility in drawing the figure in action can hardly be expected from students who are allowed to neglect the study of composition. The examiners are convinced of the need to encourage this most important branch of study.

Anatomy.—The exercises this year call for no special comment; they only serve to emphasise the necessity of associating the teaching of anatomy with a study of the living model.

Diagrams and plates are only a means to an end, and are often misunderstood or misinterpreted. A few rough sketches made from the actual bones are worth much more educationally than the careful copies taken from the illustrated text-books. For this reason every student should endeavour to obtain access to a museum or other place where a human skeleton is exhibited.

Perspective.—As was the case last year, the exercises in Section A. show that a large proportion of students understand the method of drawing simple objects to scale in perspective from a given plan and elevation, although there are some cases showing uncertainty or inaccuracy in the measurement of heights as well as in the measurement of lines contained in planes above the ground level.

The projection of simple shadows does not seem to be generally understood as clearly as the projection of simple reflections. There is, however, a considerable number of exercises showing satisfactory results in both shadows and reflections.

In Section B., the exercises in sketching a view of a building from a given plan and elevations are, on the whole, satisfactory, though a certain number of students have worked out their drawing by geometrical perspective methods. It should be clearly understood that the object of Section B. is to test the student's power in the making of a sketch.

Architectural Drawing.—Less than a quarter of the candidates were able to be marked as having shown a fair drawing of architecture. The general tendency, even with those who have learned to draw a column in elevation, has been to regard the exercise as one of geometrical line-work.

The candidates this year were given the opportunity of applying their knowledge of columnar form to the exhibition of it in a triumphal arch; but though there were many instances of a fair appreciation of the connections of building plans and sections, there were very few to show appreciation of the projections and alignments, which are material conditions for columnar architecture. This is a matter of intelligent observation; and the examiner would suggest that the student be put before the actual examples, which are to be found in most towns, of finely designed columnar buildings, and be exercised in the drawing of columns and capitals in the round to a large scale, which will compel his attention to the real aspects of classic forms.

The Examination in Painting.

The members of the examining committee were:—Mr. George Henry, A.R.A., R.S.A. (Chairman); Mr. J. W. Allison, H.M. Inspector of Schools; Mr. F. Black, R.B.A., Principal of the L.C.C. Camden School of Art, Islington, London; Mr. J. Seymour Lucas, R.A.; Professor G. E. Moira, Professor of Painting at the Royal College of Art.

Drawing from Life.—There is a slight improvement in this test compared with the work executed at last year's examination.

Painting from Life.—The examiners are glad to note a further improvement in the students' appreciation of light and colour shown in the various works submitted.

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In some otherwise good studies the modelling was unduly rounded and over-emphasised. Attention to the more subtle qualities of modelling and the surface planes would lead to a higher quality of work.

Figure Composition.—The examiners consider that more attention should be given to the general scheme required to be shown in the scale sketch. The design of the surroundings of the panel suggests, in some cases, a commonplace outlook and a lack of careful consideration of the relative proportion of the various parts, and no indication is shown of the colour scheme as required by the instructions to candidates.

More attention should be paid to the arrangement of the figure masses in contrast with the space masses. The latter should receive as much consideration as the former; their proportion in relation to the figure masses should be well planned and they should not be cut up with confusing detail.

The general quality of the exercises is slightly higher than that of last year.

Examination in Modelling.

Only one candidate entered for this examination this year, and his work in all the subjects of the examination reached a very high level. The examiners awarded the mark of "distinction" to this candidate.

Examination in Pictorial Design.

For the examinations in pictorial desgn and industrial design the committee were as follows:—Professor Selwyn Image, M.A. (Chairman); Mr. H. Allport, H.M. Inspector of Schools; Mr. R. Anning Bell, A.R.A., R.W.S.; Mr. J. Harrison, Hon. A.R.C.A. (Lond.), Principal of the School of Art, Waverley Street, Nottingham; Mr. T. Erat Harrison; Mr. T. Stirling Lee, R.B.S.; Professor W. R. Lethaby, F.R.I.B.A., F.S.A., Professor of Design at the Royal College of Art; Mr. F. Suddards, H.M. Inspector of Schools. Mr. S. J. Cartlidge, Chief Inspector of Schools of Art; and Mr. A. Spencer, Principal of the Royal College of Art, were also members of each of the committees.

Preliminary Knowledge.—The exercises in this department were worked but poorly. Candidates should take great care to read and understand thoroughly the questions asked before attempting to answer them; and they should observe strictly the conditions demanded in each question.

Figure Composition.—(*a*) The few designs for a poster were on the whole good, and in distinct advance of the work shown last year.

(*b*) The designs for a book illustration, in which one figure at least was to be shown holding a spear, were very poor.

Here the work showed a sad falling-off from that of last year. The design of not a single candidate could be regarded as good.

General Remarks.—The examiners are surprised to find in many of the exercises no evidence of adequate instruction in composition, a matter which they consider to be of the highest importance in preparation for examination in this subject.

Examination in Industrial Design.

Drawing or Modelling from Historic Ornament.—More candidates presented themselves than last year, but in general their work was hardly so good. In the modelling, the examiners noted a certain lack of *intelligence* in manipulating the clay, and they would specially call teachers' attention to this fact.

Preliminary Knowledge.—Here, as on former occasions, the written answers were a good deal better than the worked exercises. The illustrative examples given were often badly drawn, notably by students of embroidery, dress design, and jewellery; and some candidates seemed to be quite ignorant of what it is that specifically constitutes Roman letters and Roman numerals. The examiners also observe a considerable tendency on the part of not a few students to "cram up" and reproduce details of information respecting some one craft, while their more general knowledge is clearly neglected and inadequate.

Original Design (*a*) *Involving Modelling.*—With the exception of one example no work deserved to be called "good." The pottery designs were fair, and better than last year. But on the whole the work shown was poor. In the classes of iron work, gold and silver smithing, and die sinking there were no candidates.

(*b*) *Not involving Modelling.*—In this group the embroidery designs were by far the most numerous. A large number of these were very satisfactory, and several quite excellent. In the very important class of stained glass, one candidate showed excellent work.

History and Styles of Ornament.—There were a few good papers in this class, but on the whole the work was indifferent. The examiners note that some candidates, while giving full written answers to the questions, show very little power in graphic illustration.

Testimonies of Study.—In respect of the evidences of study submitted to them the examiners were much struck by their highly satisfactory character. They gave evidence generally of hard work, sound instruction, and considerable technical ability. In not a few cases, the excellence of the drawing from the antique and from the living model was especially remarkable.

This being so, the examiners are at a loss to understand why, in the examination under the heading of Preliminary Knowledge, the answers to such questions as involved illustration should have been on the whole so poor. A single instance of this may suffice. In the evidences of study it was clear that a good deal of attention had been paid to the development of shield-forms, yet in the examination the examples drawn as illustrative of this development were, as a rule, strangely meagre; and in many cases the candidates, instead of answering the quite definite question as to the *form* of shields, treated only of their charges. In the questions dealing with costume, the architectural treatment of windows, and lettering, the same discrepancy between the knowledge shown in the evidences of study and that shown in the examination was equally surprising. On the other hand, the written answers to questions in the examination as to preliminary knowledge were, on the whole, well done. It would seem, therefore, that there is a tendency in a large number of students to remember accurately the knowledge acquired from lectures and books, yet so little to make this really their own that, when called upon to put it into practice, they are quite at sea. To the criticism here offered the examiners would call the serious attention alike of students and of teachers.

General Observations.—Although the number of candidates has increased in spite of the abnormal circumstances of this year, doubtless many of the better students have been prevented entering themselves for examination. Taking this into consideration, the examiners feel that the result of the examination as a whole is satisfactory; but they have to call attention to the fact that a considerable number of candidates failed to pass the tests qualifying for admission to the examination proper. Especially the evidences of study show how much hard work is done, and how much sound teaching given, in the schools generally. But again the examiners would remind teachers how vital it is, not only to see that their students receive sound instruction, but that they appreciate its significance—not only that they work diligently, but that they become more and more capable of self-reliance and of intelligently applying what they have learned to the practice of their several crafts.

Some students of special crafts, as stained glass and embroidery, submitted testimonies which were thorough and systematic.

THE BRITISH MUSEUM.

The figures of attendances at the British Museum, Bloomsbury, during the year 1914 were, says the official annual report, naturally affected very materially by the war. Up to the end of June the number of visitors showed a considerable advance (amounting to over 31,000) even on the exceptionally high figures of 1913. In August and September, however, there was a falling-off of more than 100,000, and considerable reductions in each of the following months, with the result that the year closed with a total of 814,517 visits, or 132,573 less than in 1913, though still in excess of all the years from 1905 to 1912 inclusive.

The visits of students to particular departments likewise show reductions in nearly every instance, though to a less marked extent. The visitors to the Reading Room numbered 224,560, as against 243,659, those to the Newspaper Room 16,704, as against 17,938, and those to the Students' Rooms of the other departments 31,949, as against 37,788. The only item which shows an increase is the number of students working in the Sculpture Galleries.

Owing to the continuous and increasing demand for the services of the official guide-lecturer, a second guide was appointed provisionally in May, and his appointment was made permanent in November. The number of persons attending the guides' lectures during the year was approximately 20,300.

The extension building, officially known as King

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Edward the Seventh's Galleries, was opened to the public on May 7 by his Majesty the King, accompanied by her Majesty the Queen and H.R.H. Princess Mary, in the presence of more than 800 invited guests, including the Trustees and their friends, members of the Diplomatic Corps, representatives of the Government Departments and other distinguished persons, benefactors of the Museum, and past and present members of the Museum staff, both at Bloomsbury and at the Natural History Museum. A bust of H.M. King Edward VII. was unveiled by H.M. the King, and his Majesty was graciously pleased to declare the building open. Their Majesties then proceeded to view the new exhibition galleries, which were also visited in the afternoon by a large number of invited guests, and were thrown open to the public on the following day.

The new building contains five floors, of which one and the greater part of another are exhibition galleries, while the others are devoted to working room for the staff and for students, and to purposes of storage. The Department of Prints and Drawings has its exhibition gallery and Students' Room on the upper floor, and its working rooms in part of the floor below, the remainder of which is assigned to a Students' Room for the Department of British and Mediæval Antiquities, and to the storage and study of maps and music. The ground-floor gallery was occupied during 1914 by an exhibition of paintings, manuscripts, and miscellaneous antiquities brought from Central Asia by Sir Aurel Stein, but will eventually contain the Glass, Ceramic, and Mediæval collections. The sub-ground floor will contain the office for the receipt of publications under the Copyright Act, the Newspaper Students' Room, and the storage of newspapers; while the basement is available for purposes of storage, especially of printed books. The block of building which forms the connection between King Edward the Seventh's Galleries and the rest of the Museum contains on the ground floor a supplementary Reading Room, and on the upper floor working rooms and an additional exhibition gallery for the Department of Egyptian and Assyrian Antiquities.

The process of transferring the collections from the old building to the new, and of re-arranging the galleries in the old building thus vacated has been greatly delayed, first by the dispute in the building trade in the early months of 1914, and secondly by the outbreak of war.

The war has affected the Museum in many ways. Over sixty members of the staff at Bloomsbury, and over thirty of those at the Natural History Museum, have taken service in the naval or military forces of the Crown. Others have been attached to the War Office and the Foreign Office for special duty, while many of those who could not be accepted or granted leave for active service have joined various volunteer organisations for military, protective, or hospital work. Special precautions have been taken to protect the collections in the event of raids by hostile aircraft. At an early stage in the war a large number of the more portable objects of special value were removed to positions of greater security in safes or in strong rooms, their places in the exhibition galleries being taken by objects of lesser value or by facsimiles. Additional measures, including the protection of certain objects which cannot safely be removed, have been taken since the close of the year to which this report relates.

The war has further affected the Museum by the reduction of the number of visitors, which involves a reduction in the receipts from the sale of publications, and by the lessening of correspondence, as well as visits from foreign scholars. On the other hand, the Museum has been much utilised by Belgian and French refugees, for whose benefit special lectures have been arranged by the official guides.

Progress with official publications will be seriously delayed, both by the absence of members of the staff on military duty and by the inevitable curtailment of expenditure on such objects. In particular, the consideration of a scheme for a re-issue of the general catalogue of printed books will have to be indefinitely postponed.

Outside the Museum, excavations were continued at Jerablus during the spring and early summer, with satisfactory results. A preliminary volume, giving an account of the site and reproductions of the principal monuments and inscriptions hitherto discovered, has been published. The continuance of this work is mainly due to the liberality of an anonymous benefactor, who has already contributed £5,000 towards it, and has recently conveyed a further sum of £10,000 to trustees to provide for its further progress. Excavations are now necessarily in abeyance, but there is no reason to suppose that the site or the antiquities discovered there have suffered since the outbreak of war. The disposition of the natives has always been friendly towards the British excavators, and they appear to have continued to safeguard the site.

The number of separate objects incorporated in the collections of the several departments during the year 1914 is as follows:—

Printed Books:	
Books and pamphlets	32,539
Serials and parts of volumes	71,831
Maps and atlases	2,942
Music	12,391
Newspapers (single numbers)	231,882
Miscellaneous	8,734
Manuscripts and seals	1,353
Oriental printed books and manuscripts	4,626
Prints and drawings	6,657
,, ,, (Oriental)	386
Egyptian and Assyrian antiquities	5,454
Greek and Roman antiquities	146
British and Mediæval antiquities	3,072
Coins and medals	3,090
Total	385,103

The most noteworthy of these accessions have been the Hazlitt bequest, which will ultimately provide a fund of about £10,000 for the purchase of early English printed books; the printed books and manuscripts, purchased at the Dunn sale; several large collections of Egyptian and Assyrian antiquities, including a valuable bequest from Mr. H. F. B. Lynch; and a selection from the remarkable find of Jacobean jewellery, of which the greater part is in the London Museum, presented by the Right Hon. Lewis Harcourt, M.P.

From the Dunn sale the Department of Printed Books acquired (with the assistance of friends) the "Commentary of Servius on Virgil," printed at Florence in 1471, being the first book printed in that town, and a very fine volume; also eighty-two other volumes of incunabula which fill gaps in the Museum collections. The Department also acquired from the Chapter of Lincoln an interesting collection of musical works (chiefly madrigals, motets, &c., by Italian composers of the sixteenth and early seventeenth centuries). The most interesting among the remaining acquisitions of the Department is perhaps the sheet of four Indulgences, printed in Caxton type by Wynkyn de Worde in 1498. Another is "The Boke of Surveying," by R. Redman (about 1535).

The Department of Manuscripts has received, under the will of the late Lady Layard, the whole of the diplomatic papers and general correspondence of her husband, Sir A. H. Layard, G.C.B. In addition to the political importance of these papers (which will necessitate the withholding of certain portions from public access for some time, in accordance with the wishes of the Foreign Office), they contain a good deal of matter relating to the excavations which Layard, in his earlier days, conducted at Nineveh on behalf of the British Museum. Another important correspondence is that of George Canning with J. Hookham Frere, consisting of 160 letters. Some illuminated MSS. were acquired at the Dunn sale, and some interesting State papers at the Hodgkin sale. One of the three known copies of an early draft of Sidney's "Arcadia" was purchased from the late Mr. B. Dobell; and a book of interesting associations is the copy of Pope's "Iliad," in six volumes, presented by the author to Gilbert White, and containing two pen-and-ink sketches of the latter, which are the only known portraits of him in existence. In addition, several valuable Greek papyri from Oxyrhynchus have been presented by the Egypt Exploration Fund; and two vellum Greek documents of the first century B.C., discovered in Western Media and hence of unique character and special palæographical interest, have been acquired by purchase. It should also be noted that the Department has received two deposits of exceptional interest, which, it is hoped, will be permanent. One consists of the journals and memoranda of the late Captain R. F. Scott during his South Pole expedition, including the diary of the final journey to and from the Pole up to the date of his death, which have been deposited in the Museum by Lady Scott; and the other of the musical autographs belonging to the Royal Philharmonic Society, including works by Beethoven, Haydn, Mendelssohn, Spohr, and other famous musicians.

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The Department of Oriental Printed Books and Manuscripts has acquired by purchase a volume of Syriac theological writings, dated in the year 721, and several Arabic, Persian, and Turkish MSS., many of which are unique.

The Department of Prints and Drawings secured several very fine early German engravings, together with two exceptionally rare fifteenth-century metal-cuts in the "dotted" style; also ninety-five etchings by Piranesi (ninety-four subjects of the "Vedute di Roma" in early states, before the plates were re-worked. Interior of the Temple of Neptune at Paestum; unpublished and probably unique trial proof of a rejected plate, corresponding in subject to Pl. 12 of the published series of twenty views of Paestum); two drawings by Whistler; an etching by Josef Israels, presented by Mr. J. C. J. Drucker; and several interesting examples of contemporary etchings, lithographs, and woodcuts. In the Oriental section the principal acquisition was a Chinese painting of great antiquity, probably of the eleventh century, which was purchased with the help of the National Art-Collections Fund and private benefactors. The subject of this latter is Lady Fong, a heroine of the first century B.C., throwing herself in the path of an escaped bear to save the Emperor's life. It is a painting of great importance in view of the extreme rarity of figure-paintings, other than Buddhist, of so early a period (tenth to eleventh century), and remarkable for beauty of colour as well as for energy of design.

The acquisitions of Egyptian and Assyrian antiquities have been very numerous, and include pre-dynastic objects from Upper Egypt, a granite statue of a chief, a portrait in sunk relief of Amen-hetep IV., a blue glazed coffin with figure inside it, a sandstone sarcophagus of the nineteenth dynasty, 873 scarabs mostly of the Hyksos period, several bronze figures of gods, a large basin for libations, a fine black basalt head of one of the Ptolemies, a large stele in Meroitic script, a tablet with an important list of early Babylonian kings, a hundred contract tablets of the first dynasty, a collection of over 3,000 early Babylonion tablets from Tell Lo, a foundation cylinder of Nabonidus, and many others.

The Department of Greek and Roman Antiquities has secured several interesting bronzes, including a fifth-century statuette of Hephæstus, and a remarkable bronze steelyard; an alabaster statuette of Aphrodite; a marble votive relief of Zeus of Labranda, from Caria, associated with the sculptures of the Mausoleum; a series of sculptures brought from Rome to England in the eighteenth century; a large amphora of Dipylon style, and a number of other vases. In the Elgin Room a reconstruction of the frieze and cornice of the Erechtheum has been completed; casts of fragments of the frieze have been mounted against a background of black marble and combined with slabs of the architrave and cornice. The Ionic capital of the archaic Temple of Ephesus, dismantled last year, has been restored, with two newly fitted fragments, and replaced. In the Mausoleum Room three slabs of the cornice from the Temple of Athena Polias at Priene have been completed with the aid of casts from Berlin. A newly acquired sarcophagus front and two lions' heads have been mounted in the Mausoleum Room passage.

The Department of British and Mediæval Antiquities received an important accession of arms and armour as the result of the labours of a committee appointed to report on the various collections in the armouries of the Tower, Woolwich, and elsewhere. The Byzantine Research Fund placed at the disposal of the Trustees all the results of its excavation of a Coptic site in Egypt. The gift of a selection from a remarkable "find" of Jacobean jewellery by the Right Hon. Lewis Harcourt has been mentioned above, and a fine English astrolabe of the fourteenth century was presented by Mr. Maurice Rosenheim. Another acquisition was a fine cameo of Queen Elizabeth. A Persian pottery bowl and cup was the gift of Mr. Van den Bergh, and a large Persian dish was acquired by purchase. The second portion of a large collection of ancient Peruvian pottery was also acquired in the course of the year; and among a large number of additions to the ethnographical collections the most noteworthy was an elaborately carved ivory tusk from Benin.

In the Department of Coins and Medals the principal accessions were a unique Paphlagonian coin of Attalos Epiphanes; an almost unique tetradrachm of Orodes II. of Parthia; a group of gold staters of Cyrene; an unique bronze coin of Carausius, and a selection of early English coins from the Carlyon-Britton collection; a selection of English coins of the fourteenth and fifteenth centuries from the Walters collection; a fine and unique medal by Simon Passe; and a very fine collection of over a thousand coins of the Frankish rulers of Athens and Achaia and of the semi-bracteate coins of Switzerland, presented by Mr. Maurice Rosenheim.

The special Parliamentary grant for the assistance of Schools of Art has been devoted to the supply of (1) casts of ancient sculpture, (2) facsimiles of illuminated manuscripts, (3) electrotypes of Italian Renaissance medals. Gifts of official publications have also been made to many local libraries and museums.

THE NEW BRITISH NON-SEPTIC HOUSE AND TOWN SEWAGE-DRAINAGE AND SEWAGE-DRAINAGE VENTILATION SYSTEMS OF THE TWENTIETH CENTURY AND AFTER.*

By Isaac Shone, C.E., Westminster, S.W.

Before discussing the subject matters of the paper, and giving brief descriptions of the principal apparatus, &c., which are required to render the interiors of soil and waste pipes, and drains and drain-interceptors, and rainwater, bath and sink-stone gully traps, and the street rainwater gully traps, and all the drains and sewers connected therewith, practically and to all intents and purposes non-septic, as they now can and ought henceforth to be made to be, and at less cost than similar works on the existing systems entail; and lest some should perchance be led to think that the new methods in connection with the non-septic sewage-drainage and sewage-drainage ventilation systems are not strictly in accord with the best and most modern up-to-date sanitary-engineering methods, the author desires to recall what Mr. Stephen S. Hellyer, the eminent London plumber, states on page 146 in his admirable book entitled "The Plumber and Sanitary Houses" (B. T. Batsford, London), which is as follows:—

"In the *old* way of draining a house the air in the pipes and drains was confined as much as possible, and only allowed to escape in the form of noxious gases through the water-seals of the various traps, or the gas-holes they made in the pipes. But *now* every waste-pipe, every soil-pipe, every piece of drainage—whether long or short—has, or should have, a ventilating pipe."

The self-cleansing and self-ventilating Shone pneumatic sewage ejector has been installed at the Houses of Parliament, where there is a nest of three, one of 500 and two of 350 gallons capacity, fixed in a handsome but substantial brick-built chamber that was sunk under the "Speaker's Green," where they have been continuously and successfully at work, automatically receiving the sewage and rainfall of those buildings night and day, and ejecting the same into the 8-foot diametered L.C.C. main sewer—which is laid under the Thames Embankment—ever since the Shone Hydro-Pneumatic Drainage Works were inaugurated there in January 1887.

Differences exist between a Shone automatic sewage ejector, which is worked by compressed-air power, and a Shone automatic hydrodynamic sewage collector and ejector, called a "Cuncta-in-Unum," which is worked continuously night and day from one year's end to another with the sewage waters that are now allowed by British householders everywhere to run in driblets to waste to the public sewers, without effecting any real hygienic flushing and ventilating benefits, either to the private house-drains or to the public sewers.

The above-described differences between the two machines are great, and it is very important indeed that those differences should be at once thoroughly understood and appreciated by sanitary engineers and architects generally.

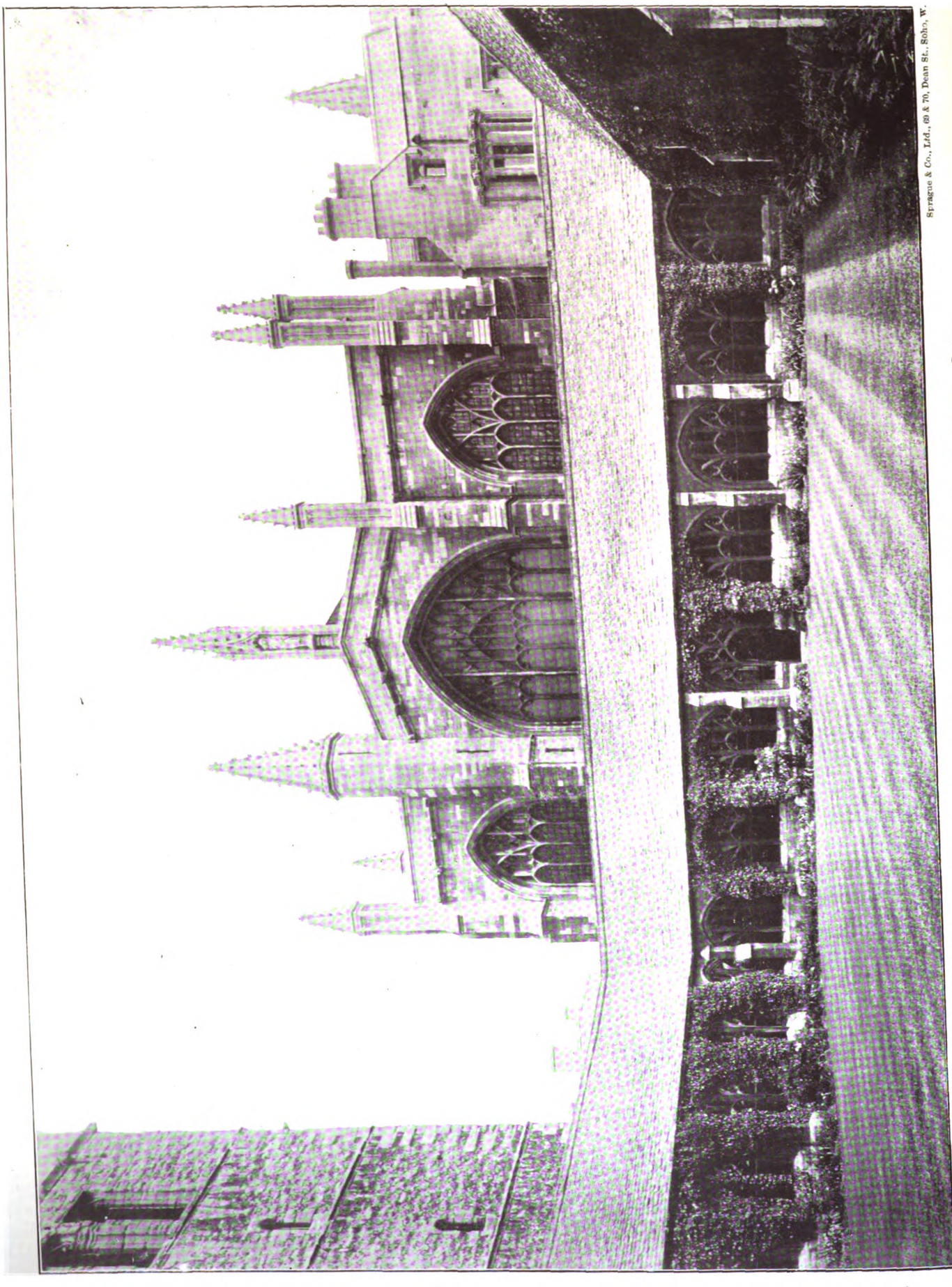
It is very gratifying to the author now that he is practically an octogenarian to express his belief that the principles and *modus operandi*, &c., of the Shone Compressed-air Ejector system are more or less well known and practised by the leading sanitary engineers of the world at the present time. But for the reason that the New Non-Septic Sewage Drainage and Sewage Drainage Ventilation systems have only recently been brought to public notice, it follows that the techniques of these latter cannot possibly be well

* From a Paper prepared for the forty-second annual general meeting and conference of the Institution of Municipal and County Engineers at Westminster. June 1915, and published in full in their Journal.

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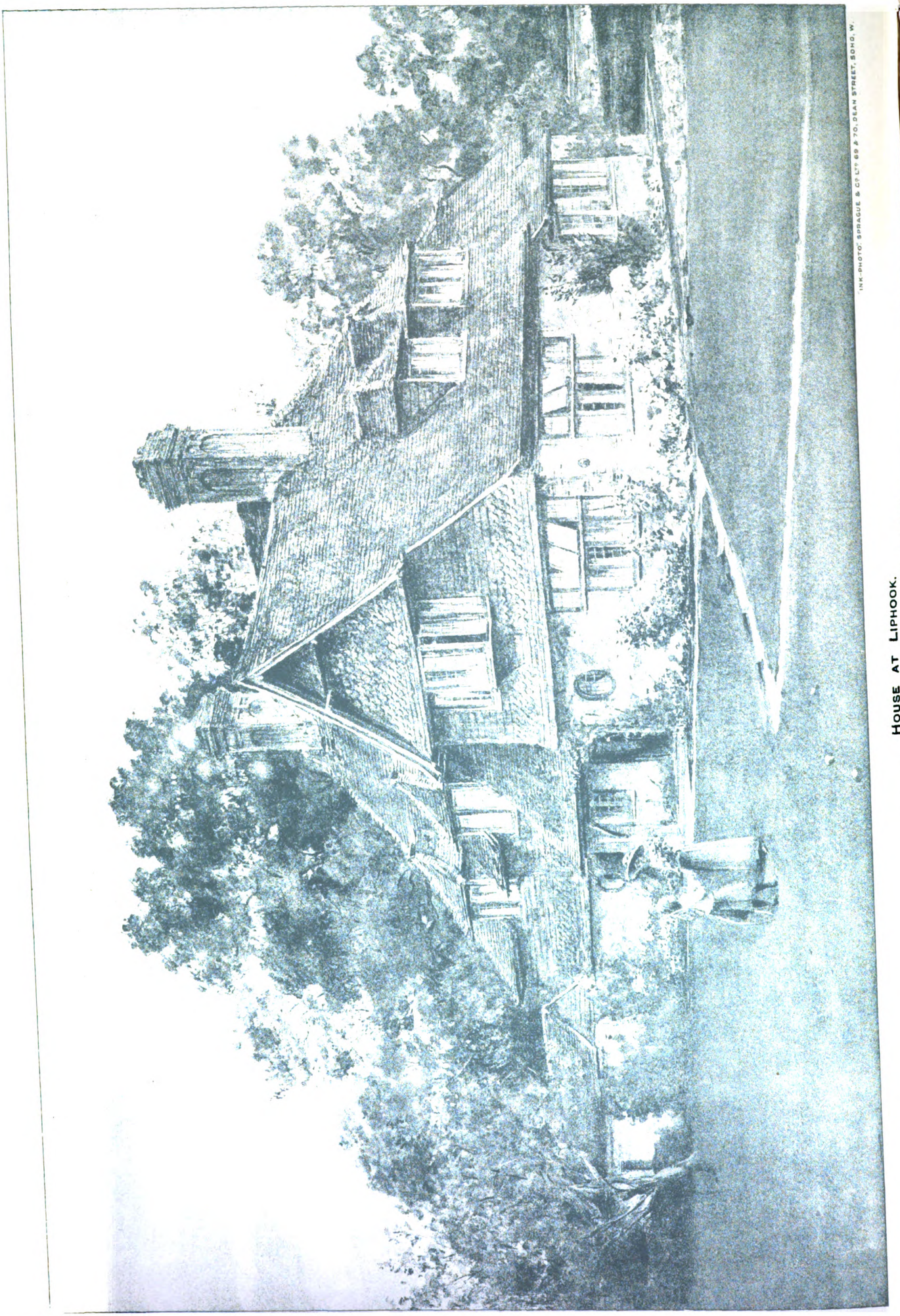
OXFORD COLLEGE SERIES. No. 150.—NEW COLLEGE: CLOISTER QUAD.

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HOUSE AT LIPHOOK.

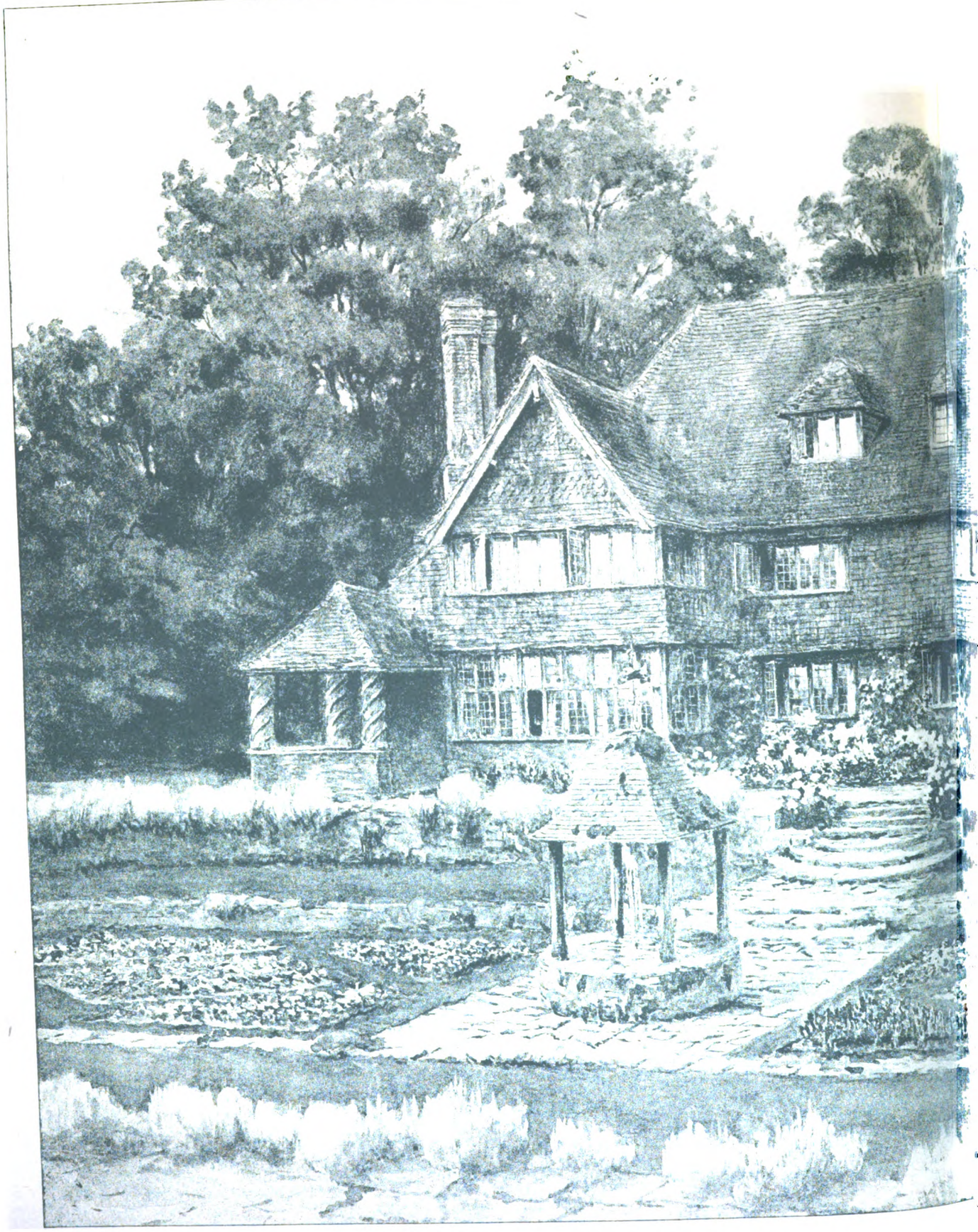
Messrs. GERALD UNSWORTH & INIGO TRIGGS, Architects.

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HOUSE AT

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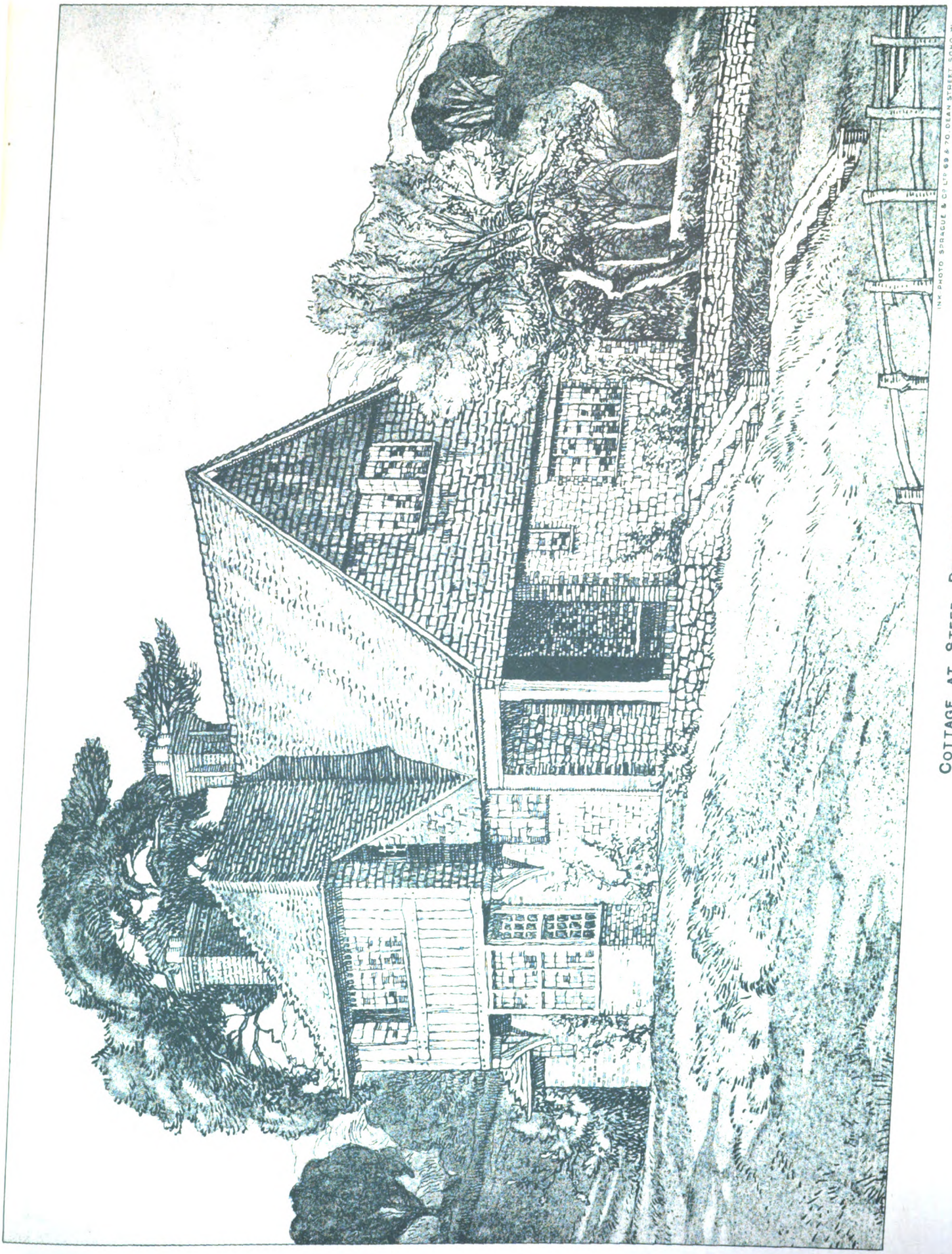
FOREST ROW.

& INIGO TRIGGS, Architects.

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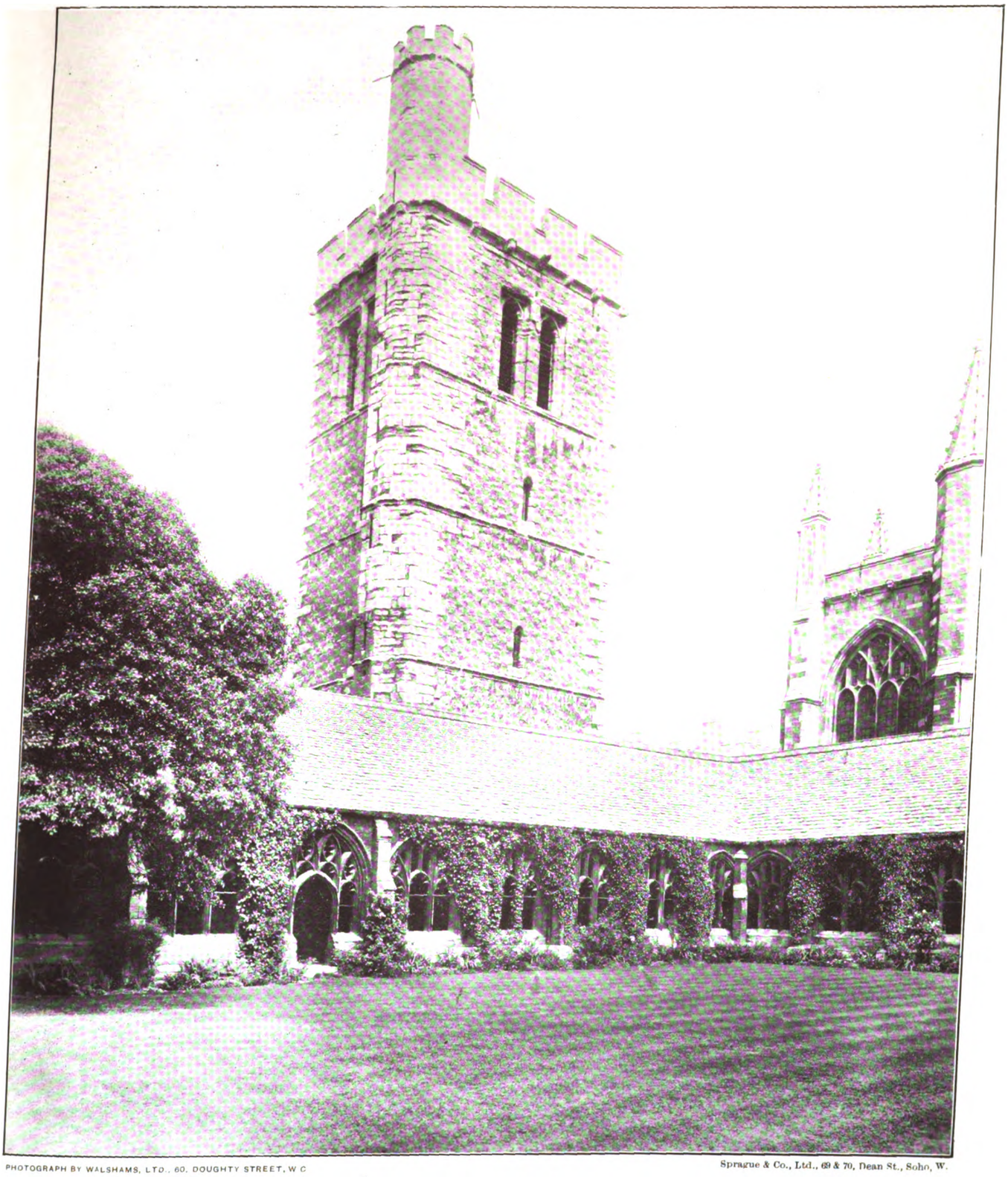
COTTAGE AT STEEP, PETERSFIELD
Mr. GERALD UNSWORTH, Architect

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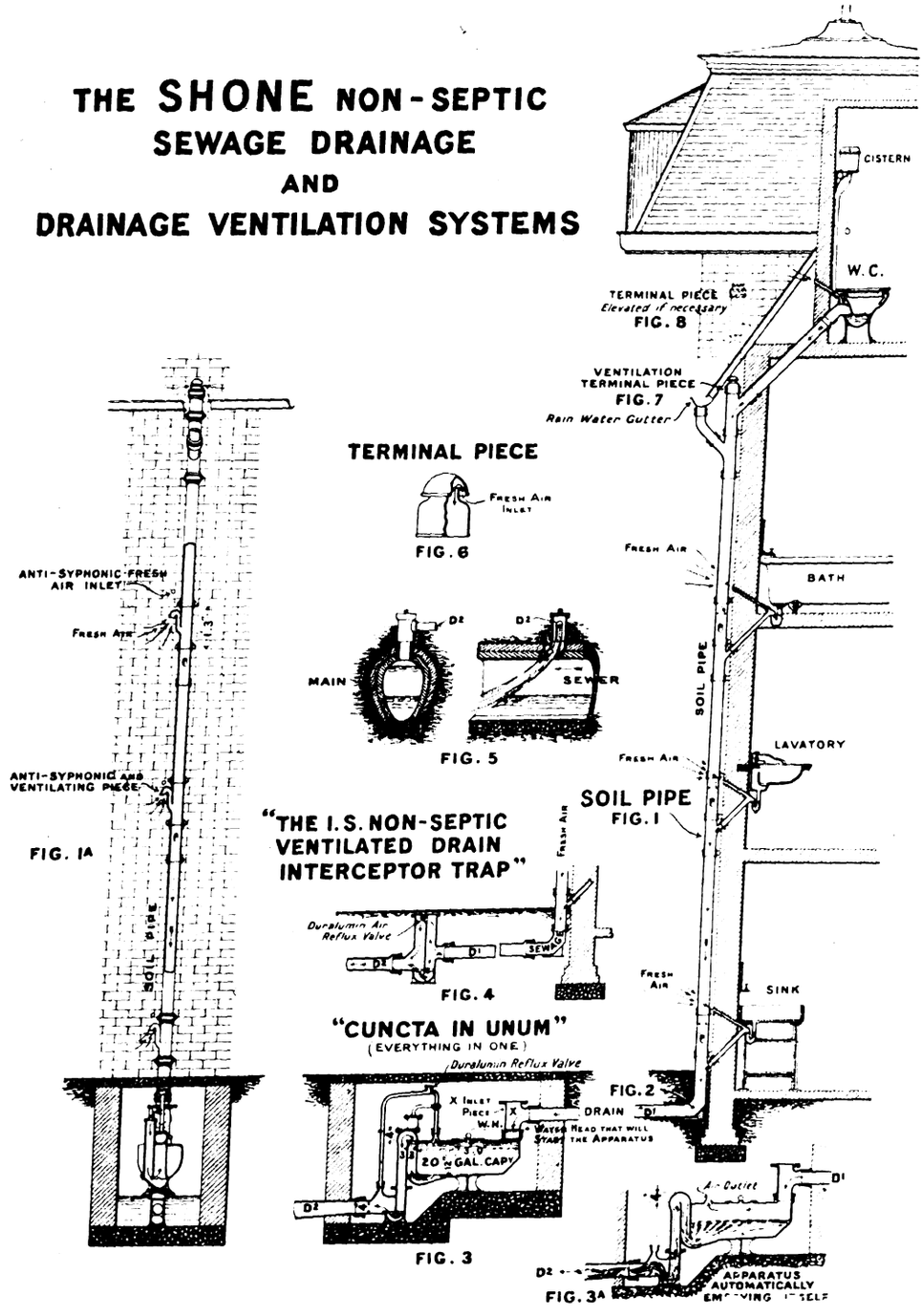
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known, even to the municipal engineers of England, much less to the public sanitary authorities of England, at the present time.

By way of emphasising the importance of this aspect of the subject, it may be mentioned that it has come to the author's knowledge that some engineering experts, whilst inspecting the "Karsino" Hotel drainage works a short time since, on looking down upon the 20-gallon "Cuncta-in-Unum," which is fixed in a chamber (similar to the one illustrated by fig. 3) under the floor of the hotel bar immediately adjoining the Palm Court, came to the conclusion that the apparatus was worked as the original Shone ejector is worked—viz., by compressed air, which of machines, the one called the compressed-air ejector, and the other the hydrodynamic collector-ejector, called the "Cuncta-in-Unum," worked together in such intimate interdependence as at Tagg's Island, on which the "Karsino" Hotel is built.

When the compressed-air ejector is filled with its charge of liquid, as already stated, its contents are automatically forced out of it by compressed-air power, to any desired point or points of outfall, thereby rendering that apparatus of infinite value to sanitary engineers, who, by its aid, are able to lay down both in flat low-lying as well as under undulating surfaces those idealistic gradients which are known to be necessary to enable the drains and sewers to



course is a fallacy, because, as explained above, the beauty of the "Cuncta-in-Unum" is that it costs nothing to operate, and that it is worked solely by such domestic or other liquid wastes as the householders using it choose to discharge into it, whether these liquids be sewage proper separated from the rainfall, as is the case at the "Karsino," or whether they be sewage proper and rainfall mixed or combined. The "Karsino" Hotel drainage and the Hampton Urban District Council's drainage works, being both under the jurisdiction of the Hampton District Council, are naturally specially interesting to the author, as never before have the two Shone sanitary sewage collecting and ejecting perform their functions efficiently as sanitary sewage carriers. The "Cuncta-in-Unum," however, unlike the compressed-air ejector, cannot be made to lift its sewage charges more than 4 inches above the surface of the liquid within it, when it is full, as illustrated by the figs. 3 and 3A. Nor is it necessary for the sanitary purposes for which the apparatus was designed that it should lift its fresh non-septic sewage charges the one-hundredth part of an inch higher than it does lift them, above the highest as well as the lowest levels to which the sewage rises and falls within it, whilst it is being actively filled and emptied of its liquid charges, perhaps as often as ten or twenty or more times per

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day of twenty-four hours. Also unlike the compressed-air ejector, the "Cuncta-in-Unum" needs no iron or other water valves to operate it, and to interfere with the free flow of sewage. The only valve connected with it is the 1-inch Duralumin reflux air valve, which, as is indicated on the illustration fig. 3, is high and dry (about 18 inches) above the top level of the sewage within the apparatus.

The apparatus, as it is illustrated, will be the recipient of a variety of liquid wastes, which are characteristic of British home-made sewage, that will be discharged into it, via the soil-pipe marked fig. 1, and the drain marked D_1, and when it will be filled to its utmost capacity its contents will be automatically discharged into the public sewer via the main drain of the house, which is marked D_2.

It will be seen that the w.c. discharges, and the rain falling on the roof of the house, and the bath, lavatory, and sink waste waters are to be discharged direct into one soil-pipe, marked fig. 1, and that the trapped water of the w.c. has the air of the room in contact with it on the inflow side, and the air of the heavens in contact with it on the outflow or soil-pipe side, and the same ventilation arrangements are provided for the water traps of the bath, lavatory, and the sink-stone. By utilising the soil pipes in the manner indicated, numerous costly and ugly-looking septic rainwater and sink-stone and bathwater gully traps, which are absolutely nothing more nor less than miniature mud-like cesspits or cesspools, will be entirely dispensed with.

Moreover, on the soil-pipe, as indicated by the two views of it marked respectively figs. 1 and 1a, special short pieces called antisiphonic pipes are provided at intervals where required, which act as perfect soil-pipe ventilators, and cheap and efficient fresh-air antisiphonic pipes at the same time.

The roof rainfall waters of course need no trap, and none is provided.

As the various waters fall down the soil-pipe, and pass the ventilating and antisiphonic openings on the same, the falling liquids will obviously force air out of them, and, at the same time, pull fresh air after them alternately, and the major portion of such air, when the "Cuncta-in-Unum" is not full of water, will pass through and out of it, via the 1-inch ventilating air-pipe at the top of the apparatus till it reaches and passes through the 1-inch Duralumin reflux valve and the 1-inch ventilating air-pipe on the sewer side thereof—to ventilate, firstly, the drain marked D_2, and, secondly, the public sewer, in accordance with the soil-pipe, &c., ventilation axioms of Mr. Hellyer quoted in the early part of this paper.

The author will now endeavour to explain the working action of the "Cuncta-in-Unum" apparatus. To enable him to do so all the more clearly he begs to be allowed to refer to a most interesting and instructive paper on "Flushing Tanks" which was prepared for and read to the Civil and Mechanical Engineers' Society on October 1, 1903, by Mr. C. T. Alfred Hanssen, A.M.Inst.C.E., who was then the President of that Society, in which were given illustrated descriptions of such flush tanks as in the opinion of its author were worth mentioning in his Presidential address. In that paper references were made "to very complete series of experiments on the effect of flushing sewers" by Mr. S. H. Adams, A.M.Inst.C.E., and from which he (Mr. Hanssen) deduced tentative formulæ based upon Mr. Adams' experiments for the consideration of sanitary engineers. The author may add that Mr. Hanssen's original empirical formulæ, after much friendly discussion in which his late partner, Mr. Edwin Ault (deceased), and Mr. Bosker, A.M.Inst.C.E. (who was at that time one of Shone & Ault's assistants), took part, were somewhat modified. Unfortunately the author has not been able to verify the approximate correctness of even the amended formulæ as he had desired and hoped to do ere this, from practical experiments in connection especially with the "Cuncta-in-Unum" apparatus. But in the absence of actual practical tests the following formulæ and calculations may be accepted as being all-sufficient for the present to estimate the potentialities of the "Cuncta-in-Unum."

The theoretical mean velocity with which the liquids will be discharged out of the "Cuncta-in-Unum" apparatus, whether to flush and ventilate the main drains of houses or the public sewers of towns, &c., can be readily calculated from the well-known fundamental formulæ which is as follows:—

$$v = 8{\cdot}025\sqrt{h}$$

where

v = velocity of discharge in feet per second.
h = height from the centre of the discharge pipe to the centre of gravity of the water contained in an apparatus of 10 gallons capacity, of which Plate 3 is a skeleton drawing.

But the actual velocity of discharge is of course much less than the theoretical velocity owing to the small bore of and the sharp bends in the siphonic pipes, and to the high velocity at which the sewage waters are made to flow through them out of the "Cuncta-in-Unum."

The area of the siphon pipe, as taken from a full-size drawing by means of a planimeter, is 11.17 square inches = $3\frac{3}{4}$ inches diameter. The area of the bends at the top and bottom of the siphon is slightly less than this—viz., 10.7568 square inches = $3\frac{5}{8}$ inches diameter.

In order to ascertain the actual velocity of the discharge, measurements have been taken of the two dimensions s_1 and h_1, the distance the jet is projected, and the height through which the water falls into a tank during the discharge. We can thus find the velocity of the jet from the well-known formulæ for falling bodies.

$$t = \sqrt{\frac{2h_1}{g}}; \quad v_1 \frac{s_1}{t}$$

where

v_1 = velocity in feet per second.
t = time occupied by the fall in seconds.
h_1 = fall in feet.
s_1 = distance travelled in feet.
g = acceleration due to gravity = 32·2.

Taking the mean from a number of observations it was found that

$s_1 = 1{\cdot}225$ feet.
$h_1 = 1{\cdot}5465$ feet.

$$t = \sqrt{\frac{2 \times 1{\cdot}5465}{32{\cdot}2}} = 0{\cdot}3101 \text{ second.}$$

$$v_1 = \frac{1{\cdot}225}{0{\cdot}3101} = 3{\cdot}95 \text{ feet per second} = \frac{s_1}{t}$$

The actual velocity of discharge from the 20-gallon tank, where $h = 1.474$ foot, is therefore very nearly

$$v_1 = 8{\cdot}025 \times 0{\cdot}405\sqrt{1{\cdot}474} = 3{\cdot}95 \text{ feet per second}$$

or about 40.5 per cent. of the theoretical velocity which should result from a siphon pipe of this size and shape.

The actual discharge from a 20-gallon tank lasts just about twenty seconds. During this period there is a considerable variation in the volume of the discharge per second, but the velocity of the discharge is nearly constant during the whole of the twenty seconds, as shown by the form of the trajectory. Neither is there any appreciable difference in the trajectory of a 20-gallon and a 10-gallon "Cuncta-in-Unum," as both have the same size siphon outlet-pipe and the same fall.

Flushing Effect of the "Cuncta-in-Unum."

The distance to which an effective flush extends may be found approximately from the formula,

$$l = 0.291\sqrt{\frac{Q(v_1^2 - v_2^2)}{a(s_m - s_2)}}$$

where

l = length of sewer flushed in lineal yards.
Q = quantity of flushing water in cubic feet.
v_1 = initial velocity, feet per second = 3·95 feet.
v_2 = final velocity required for an effective flush, say, 2·75 feet per second.
s_m = theoretical gradient corresponding to the mean velocity

$$\frac{v_1 + v_2}{2} = \frac{3{\cdot}95 + 2{\cdot}75}{2} = 3{\cdot}35$$

The gradient is found from the Shone hydraulic tables, given in the author's book "Sewage Drainage Systems," Part I., by dividing the mean velocity as found above by the velocity which obtains in a 6-inch drain laid at a gradient of 1 in 10,000 as given in column 16 of Table III., on page 363.

The sewage in a 6-inch drain laid at a gradient of 1 in 10,000 will have a velocity of 0.3087 feet per second, and as the velocity varies as the square root of the gradient, we find that

$$100\sqrt{s} = \frac{3{\cdot}35}{0{\cdot}3087} = 100$$

× the sine of the inclination required to give a velocity of 3.35 feet per second = 10.85.

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By referring to Table V., page 376, of the above-mentioned volume, which gives the gradients corresponding to $100\sqrt{s}$, we find 10.85 corresponds to a gradient of 1 in 85 or 0.011765.

s_1 = the actual gradient of the 6-inch sewer to be flushed, say 1 in 240 = 0.004167.

a = sectional area in square feet of the stream of flushing water in drain pipe. This is equal to the full diameter of the 4-inch outlet pipe from the "Cuncta-in-Unum" = 0.0873.

For a 20-gallon tank Q = 3.20 cubic feet, and therefore

$$l = 0{\cdot}291\sqrt{\frac{3{\cdot}20\,(3{\cdot}95^2-2{\cdot}75^2)}{0{\cdot}0873\,(0{\cdot}011765-0{\cdot}004167}}$$

$$l = 0{\cdot}291\sqrt{\frac{25{\cdot}728}{0{\cdot}0006633}} = \begin{cases} 57{\cdot}3 \text{ lineal yards,} \\ 172 \text{ lineal feet.} \end{cases}$$

The length of sewer flushed by a 10-gallon "Cuncta-in-Unum" under the same circumstances would be

$$l = 0{\cdot}291\sqrt{\frac{1{\cdot}60\,(3{\cdot}95^2-2{\cdot}75^2)}{0{\cdot}0873\,(0{\cdot}011765-0{\cdot}004167)}}$$

$$l = 0{\cdot}291\sqrt{\frac{12{\cdot}864}{0{\cdot}0006633}} = \begin{cases} 40{\cdot}52 \text{ lineal yards,} \\ 121{\cdot}56 \text{ lineal feet.} \end{cases}$$

It will be seen from the above formulæ that the effect of the tank as a flusher increases as the square root of the volume of sewage it contains. A 20-gallon tank will, therefore, when other conditions remain the same, flush to a length of $\sqrt{\frac{20}{10}} = 1{\cdot}414$ times further than a 10-gallon tank, A 40-gallon tank will flush twice as far as a 10-gallon tank, and so on. Similarly if the discharging capacity of the apparatus were increased from 10 to 250 gallons the flush would then reach to, and be effective for, a length of $121.56 \times \sqrt{\frac{250}{10}} = 121.56 \times 5 = 607.8$ feet.

The effect further increases in a somewhat greater ratio than the initial velocity of the discharge, and it is therefore important that this initial velocity should be as high as possible. It should, however, be observed that for very high initial velocities the mean velocity v is no longer the arithmetical mean between the initial and final velocity, but that it varies as a hyperbolic curve, and that it becomes

$$v_m = v_2\left(1 + \log_e \frac{v_1}{v_2}\right) - \frac{v_2^2}{v_1}$$

The effect of the flush is further increased with the gradient of the sewer to be flushed. If, for instance, in the above examples $s_m = s_1 = 1$ in 85, the expression $s_m - s_1$ becomes = 0, and l becomes infinite; that is, a volume of water which will fill a 6-inch drain pipe half full of sewage, if discharged into it with an initial velocity of 3.95 feet per second, will continue to flow with this velocity, if the pipe is laid at a gradient of 1 in 85, because it is the gradient that corresponds to and is required to produce the velocity stated. If the gradient of the pipe is flatter than 1 in 85, the velocity of flow will be retarded and finally be reduced to that velocity which corresponds to the flatter gradient; or, on the other hand, if the gradient is steeper than 1 in 85, the velocity of the flow in the pipe will increase accordingly.

The author must not omit to refer here also to the figs. 4, 5, 6, and 7. Fig. 4 shows how the loco-bend or the ducks-foot pipe piece at the bottom of the soil pipe would be coupled up to the short length of drain marked D_1, which lies between the bottom of the soil-pipe and the I.S. ventilated interceptor trap, or the "Cuncta-in-Unum" apparatus, as the case may be.

He claims that the I.S. ventilated interceptor trap, shown by fig. 4, is the smallest, best designed and constructed self-cleansing and self-ventilating interceptor trap ever brought so far prominently to the notice of the British public. It is also the most perfect natural automatic distributor and diffusor in the world of small volumes of drain and sewer air, smellessly and imperceptibly into the atmosphere, at innumerable points—whether these be close to or widely apart from each other—and that without causing any offensive, insanitary nuisances to the citizens, or the sanitary authorities, or the Governments paying for the works necessary to solve practically, perfectly, and for all time, the important sanitary engineering problems and reforms outlined above.

The two illustrations above fig. 5 show how by connecting future house drains to the tops instead of to the sides of public sewers, whether these latter be of the oval, egg-shaped or circular form, as was the invariable British custom in the last, as it is also in the present, century, the storage and discharging capacity of future public sewers can be made to hold and carry more than double the volume of sewage and rainwaters that they can hold and carry according to the way in which they are designed and constructed at the present time. Moreover, by thus more than doubling the carrying power of public sewers, their initial and annual working costs will not only not be increased one penny piece, but actually diminished, while their hygienic functions on the other hand will be enormously augmented.

Under these circumstances the municipal engineers of England, who were once most appropriately designated by the late President of the Local Government Board, viz., the Right Hon. John Burns, M.P., "the Guardians of the Public," will assuredly strenuously co-operate with the author to try to substitute more scientific common-sense methods than many of those that are now in vogue for draining houses and towns of their sewage discharges.

Fig. 6 is a drawing of the terminal ventilating pipe piece, which is shown fixed by figs. 7 and 8.

It will be obvious from what the author has already said that in his opinion both the I.S. interceptor trap (fig. 4) and the "Cuncta-in-Unum" apparatus marked figs. 3 and 3a are great improvements upon the present-day English unventilated interceptor traps, which, he believes, were largely responsible in the past as they are in the present century for the creation of inordinate volumes of the foul sewage-gassed air that has always, from its inception down to the present time, insanitated the "English Water-carriage Plan of Sewage Removal." Luckily, however, the climatic conditions obtaining in England are not nearly so favourable for the generation of sewage gas within drains and sewers as they are in hot countries, such as India, for example.

Whilst explaining one day to a learned friend of mine the far-reaching insanitary effects produced by the English unventilated non-self-cleansing interceptor trap, and the far-reaching hygienic effects produced by the *ventilated* self-cleansing "Cuncta-in-Unum" interceptor trap, he remarked: "Cessante causa, cessat et effectus," which, translated into English means: "When the cause comes to an end (then), the effect comes to an end," or "When the cause disappears, the effect disappears also," and translated into Welsh means: "Pan giliár achos, ciliár effaith hefyd." That the substitution of the "Cuncta-in-Unum" for the present-day English interceptor trap will really result in accomplishing what is so clearly stated in the above quotation, no competent drainage and drainage-ventilation engineering expert will doubt for a moment, after he has taken the trouble to understand its practical working actions as partly portrayed on the cartoon drawing by the figs. 3 and 3a, and by the fully detailed explanations and diagrammatic illustrations that are given in a booklet the author has just written on the subject, and which is now about to be published.

PERSHORE ABBEY.

THE Vicar of Pershore (the Rev. F. R. Lawson) has issued a report on the work accomplished in connection with the reparation of Pershore Abbey.

In 1912, it may be remembered, the removal of ivy from the south transept disclosed serious mischief, and further examination showed danger of settlement in the west wall, while the tower itself showed signs of giving to the west. A committee was formed and issued an urgent appeal, and the work of repair was begun. The transept wall (the Vicar reports) has been well repaired, the larger and more ancient cracks being filled with fresh stone; the smaller, but newer and more perilous, ones by "grouting" with liquid cement. Two large flying buttresses now support the tower from its western side, and have given it stability. Before this work was completed, in July 1913, an inspection of the unique decorated vaulting of the presbytery was made from a platform, and from above, under the roof. Very grave peril was found, some of the work being almost ready to fall. The great tie beams of the roof had rotted at their ends, had slipped from the wall-plates, and were bringing a heavy burden upon the stone vaulting.

By the architect's advice the church was closed for worship. His report, received later in July, showed that about £2,000 was required for absolutely necessary repair; further, that it might be found necessary to add additional

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Chester.—Town Hall.
Chadderton.—Town Hall.
Derbyshire.—Darley Dale, St. Elphin School.
Glasgow.—Blythwood Hotel; Masonic Halls, Rutland Crescent; City Bakeries, Ltd.; Salvation Army, Bath Street; Imperial Tobacco Co., Tobago Street; Port Dundas Distilleries; John Miller, Ltd., Printers, 322-334 St. George's Road; Kilmun Seaside Homes.
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Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.
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St. Helens.—Borough Sanatorium, Provident Hospital, and Council Schools.
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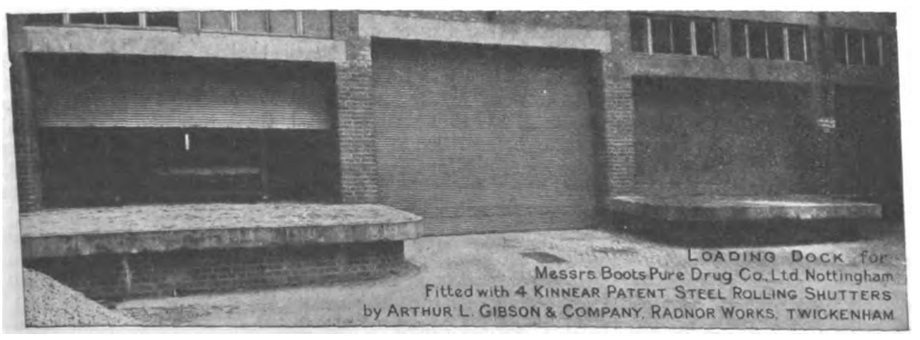
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flying buttresses to the presbytery, and to underpin the south wall of the transept—work requiring fully another £1,000. The efforts of the Parochial Committee had secured almost enough funds to pay for the work first undertaken. For the second and greater need, a wider agency was necessary. A county meeting, under the presidency of the Earl of Coventry, Lord Lieutenant, was held at Worcester early in September, and a county committee was formed to organise funds, in co-operation with the local committee. A contract for the fresh repairs was accepted, and work began in October upon the roof. The tie beams were either renewed or spliced, and put back upon the wall-plates; the worn-out lead of the outer covering was replaced by reinforced concrete. Early in January last year scaffolding was erected under the whole of the presbytery vaulting, and its careful repair was carried on. No new stone was used, and except for some damage to one of the larger bosses, the whole of the beautiful work was found unharmed, made secure, and given a cleansing which has made its loveliness more apparent than before. Some minor repairs included the reglazing of the clerestory windows, which were in a bad condition, and better glass has brought a fuller light upon the vaulting. The repair of the vaulting was so thorough that it was not found necessary at present to add extra flying buttresses to the walls, and as the cracks in the south transept wall showed no signs of movement, the underpinning could also be postponed until danger threatened. On May 18, 1914, the Abbey Church was reopened, the Bishop of Worcester dedicating the new works and the repairs to the old. The accounts of the Reparation Fund show that £3,459 9*s.* 11*d.* was raised in less than two years, and that the work has cost £3,450 8*s.* 8*d.* The balance of £9 1*s.* 3*d.* will be applied to the replacing in the Abbey, near the west door, of a late Norman font, which for centuries belonged to the Abbey. It was cast out some eighty years ago to make way for a larger and newer one, and given away to a gentleman at Kempsey. His descendant, Sir R. C. Temple, however, has given it back, and it will shortly resume its proper place and sacred use.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Imperial Maritime League.

Sir,—The Imperial Maritime League from the very commencement of its recruiting campaign realised that working below the surface there was a strong pro-German and anti-British propaganda being carried on, and that sooner or later this would develop into an open organised movement to stop the war in the interest of Germany. The League has therefore utilised its campaign to exert quietly and steadily a counteracting influence. The following resolution for signatures was drawn up and has been extensively signed:—

"We, the undersigned, desire to place on record our unswerving determination to use all the possible means at our disposal to support the Governments of the Allied peoples in carrying on the war until peace has been restored by the unconditional surrender of the enemy, and thus for all time to crush the arrogant military despotism of the German Empire, with which she is now seeking to dominate the world."

A resolution identical with this form has also been put at over 2,000 of the League's meetings. This has been passed practically unanimously, there having been so far only three dissentients to the resolution.

Now that the League's forecast has proved correct it is anxious to have this phase of its work more widely known, and we would ask all patriotic people to sign the petition and to induce their friends to do so. All who have the time to organise a house-to-house canvass in their own neighbourhood would be doing a patriotic service.

This letter will be sent to the Oversea Press in order that the movement may be an Empire and not merely a national one.

Forms can be obtained on application from the Hon. Secretary, Imperial Maritime League, 2 Westminster Palace Gardens, Victoria Street, London, S.W.—Yours, &c.,

Willoughby de Broke.

2 Westminster Palace Gardens,
Westminster, London, S.W.: August 12, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, arehitects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Berkshire.

Brenham.—Field Barn Farm: works. Mr. G. C. Stimson, contractor, Bill Hill, Wokingham (£521).

Bromborough Port.—Eighty cottages, for the Bromborough Port Development Company.

Cornwall.

Camborne.—Proposed boys' Council school, Bas-set Road.

St. Columb (near).—Proposed sanatorium, Castle-an-Dinas.

Cumberland.

Brampton.—Bungalow, the Paving Brow, for Mr. Hedley Chapman, jun.

Stonebridgelees.—Tuberculosis hospital. County architect.

Durham.

Gateshead.—The "Imperial" Picture Hall, Felling: additions and alterations, for the Imperial Hall Company.

Hetton.—Twelve aged miners' homes (£2,000), for the Durham Miners' Association.

Houghton-le-Spring.—House and shop, Bank Head, for Mrs. Davison.

Shotton Colliery.—Council school: additional 250 places.

Sunderland.—The "Commercial Vaults," Green Street: alterations, for Messrs. C. Vaux & Sons.

West Rainton.—House, for Mr. J. A. Rigby.

Essex.

Braintree.—Three houses, Chapel Hill, for Mr. E. Warren.

Pair of villas, Grenville Road, for Messrs. Wicks Brothers.

Workshop, for Braintree Castings Foundry.

Romford.—Proposed military hospital.

Hampshire.

Drayton.—W.M. Chapel.

Kent.

Chatham.—Council school, New Road: alterations.

Maidstone.—No. 57 Union Street: addition, for Mr. G. Ratcliffe.

No. 46 High Street: alterations, for Mr. John Wright.

"Hollybush" p.h., Fisher Street: addition, for Messrs. Style & Winch, Ltd.; also

"Paper Makers' Arms" p.h., Upper Stone Street: addition.

Lancashire.

Liverpool.—Schools, Brunswick Road, West Derby, for the Liverpool Catholic Blind Asylum.

Warrington (near).—Smallpox hospital, near Houghton Green (£1.500).

Lincolnshire.

Bourne.—Infectious Diseases Hospital: tuberculosis block (£1.000).

Lincoln.—Machine shop, off Firth Road, for Messrs. Ruston, Proctor & Co.

Power-house, &c., Canwick Road, for Messrs. Robey & Co.

Workshop, Waterside North, for Messrs. Penney & Co.

Sleaford.—House, Millfield Terrace, for Mr. J. J. Banks.

Norfolk.

Hunstanton.—St. Edmund's Church: vestry.

Staffordshire.

Bilston (near).—Christ Church Schools, Coseley: additions and alterations. Messrs. Fleeming & Son, architects, 10 Queen Square, Wolverhampton.

Surrey.

Croydon.—Bakery, 69 and 71 London Road, for the Croydon Co-operative Society, Ltd.

Four houses, Ardfern Avenue, for Mr. M. Marsland.

Twelve houses, Leander Road, for Mr. P. Richardson.

Wiltshire.

Durrington.—Council school for seventy-five places.

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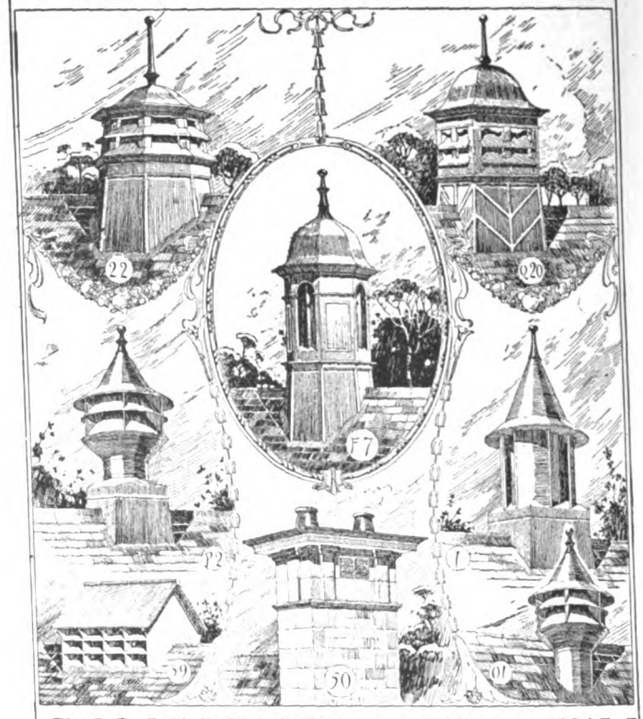
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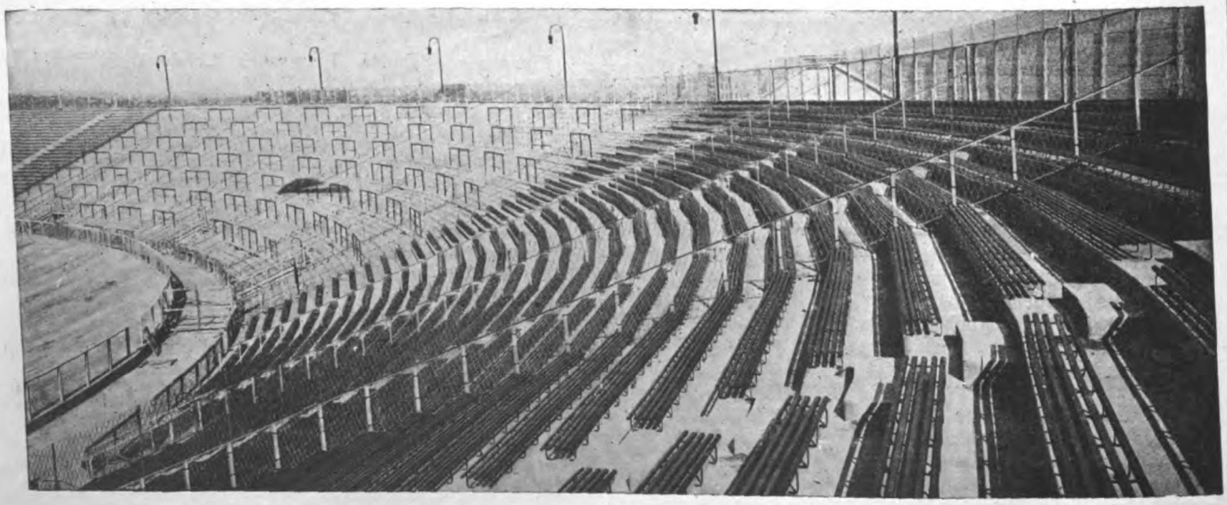


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ENGLAND—*continued.*

WORCESTERSHIRE.

Droitwich.—Conversion of old salt store, near the Drill Hall, into button factory (for fifty hands), for Messrs. B. Saunders & Sons (of Bromsgrove).

YORKSHIRE.

Barnoldswick.—Proposed Baptist Church, Manchester Road (£6,500).

New Earswick.—Twenty-two houses, for the Joseph Rowntree Village Trust.

Wadsley.—Asylum: workshop (£3,900).

WALES.

Aberporth.—Council school (£1,200).

Pontycwmmer.—Noddfa Baptist Chapel: additions and alterations.

SCOTLAND.

Aberdeen.—School of Fisheries, near the Victoria Bridge (£8,750).

Edinburgh.—School buildings, Henderson Row (£2,500), for the Royal Institution for the Education of the Deaf and Dumb.

Edinburgh Y.M.C.A.: new buildings, 12-14 South St. Andrew Street.

IRELAND.

Bandon.—Workhouse Infirmary: dispensary repairs.

Belfast.—Picture House. Mr. Bertie Crewe, architect, 75 and 77 Shaftesbury Avenue, London. Messrs. H. & J. Martin, Ltd., contractors, Ormeau Road.

Ennis.—District Lunatic Asylum: additions. Messrs. Sheehy & Tierney, architects, 57 George Street, Limerick.

Enniscorthy.—Lunatic Asylum: extension. Mr. C. A. Owen, architect, F.R.I.B.A, F.R.I.A.I., architect, 29 Molesworth Street, Dublin.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 27,120. Nov. 25, 1913.—Dated under International Convention Nov. 25, 1912. E. L. Muller, 18 Landshuterstr, Schoneberg, Berlin, and Fritz Siegheim, Wildemann-im-Harz, Germany. Stone-working machines.

27,247. Nov. 26, 1913.—Ferdinand Heck, 9 Reichswaldallee, Dusseldorf Rath, and Mannesmannrohen-Werke, Dusseldorf, Germany. Pipe joints.

27,676. Dec. 1, 1913.—Ferdinand Wiesner and Johannes Wiesner, 26 Berchtesgadener Strasse, Berlin-Schoneberg, Germany. Draught regulators for heating purposes for supplying hot water.

28,188. Dec. 6, 1913.—H. W. Baron de Stuckle, Dieuze, Alsace Lothringen, Germany. Process for the manufacture of metallic zinc or zinc oxide.

900. Jan. 13, 1914.—Frank Cacha, Regent Hotel, Leamington Spa. Self-locking electric lamp holder.

1,040. Jan. 14, 1914.—Gustav Asbeck, 34 Wahlenstr, Dusseldorf-Rath, Germany. Rolling of girders, beams, and so forth.

1,865. July 23, 1914.—J. E. Pick, 54 Canterbury Street, Garston, Liverpool. Concrete buildings.

4,567. Feb. 21, 1914.—Franz Beekmann, 16 Nowy-Swiat, Warsaw. Process for the manufacture of a neutral paint-binding medium termed "Painters' Size," in the form of powder, for house and decorative painting.

4,691. Feb. 23, 1914.—Erik Svan, 310 2nd Street, Eureka, Humboldt, California. Fire escapes.

9,235. April 14, 1914.—Dated under International Convention April 16, 1913. Ludwig Schomburg, 53 Kaiser Strasse, Gelsenkirchen, Bavaria. Pipe sockets or expansion joints.

9,727. April 20, 1914.—Dated under International Convention April 26, 1913. Firm Utzsehneider & E. Jaunez, of Saargemund, Alsace-Lorraine. Roughened paving and like blocks.

9,842. April 21, 1914.—Dated under International Convention May 6, 1913. Martin Krause, Klopslockstr 9, Berlin. Means for measuring the output of heating or cooling apparatus.

16,283. July 8, 1914.—Dated under International Convention July 16, 1913. E. R. Brodton, Southern Building, Washington, D.C. Fire-extinguishing apparatus.

9,746. April 20, 1914.—P. B. Barringer, Hill Crest, Charlottesville, Virginia, U.S.A. Fire extinguishers.

17,611. July 25, 1914.—Niels Bendixen, 31 Gamle Kongenej, Copenhagen. Electric fire and temperature alarms.

17,712. July 27, 1914.—R. W. Ford, 1,131 Barclay Street, Vancouver, B.C. Apparatus for heating water, air, or the like for circulation heating systems.

19,546. Sept. 8, 1914.—H. E. Mitchell, 5 Victoria Street, Westminster, S.W., and W. W. Nobbs, 71 Haverstock Hill, South Hampstead, N.W. Method of ventilating and apparatus therefor.

24,308. Dec. 18, 1914.—S. R. Parkes, Pretoria Works, Willenhall, Stafford. Latches.

140. Jan. 4, 1915.—Spencer Graves, Lister Building, St. Louis, Missouri, U.S.A. Coating for wood, metal, or other surfaces.

1,190. Jan. 25, 1915.—Dated under International Convention Jan. 23, 1914. Firm de Vogel Van Calcar & Co., Zwolle, Holland. Process for the manufacture of floor coverings.

17,796. July 28, 1914.—The Stourbridge Glazed Brick and Fire Clay Co., Ltd., and J. W. Smith, Holly Hall, Dudley. Drinking fountains.

23,509. Dec. 4, 1914.—T. G. Rhodes, 59 Church Street, Kirkstall, Leeds, and Raymond Gaunt, Swinnow Moor House, Pudsey. Construction of syphons used in connection with flushing apparatus and the like.

24,309. July 16, 1914.—West Disinfecting Co., 12 East 42nd Street, Manhattan, N.Y. Sanitary closets.

1,379. Jan. 28, 1915. G. G. Brodie, Eagle Foundry, Catherine Street, Aston, Birmingham; F. W. Radford and A. E. Wells, 127 Regent Street, W. Boilers for kitchen or cooking ranges and the like.

2,086. Feb. 9, 1915.—Adam Wilson, 65A Grosvenor Road, Hanwell, W. Gas burning apparatus for lighting fires.

2,177. Feb. 10, 1915.—S. C. Davidson, Sirocco Engineering Works, Belfast. Ventilation.

2,460. Feb. 16, 1915.—Dated under International Convention May 19, 1914.—Clemens Pasel, 8 Colnerstr, Essen (Ruhr) West, Germany. Iron piling.

3,616. March 6, 1915.—S. R. Parkes, Pretoria Works, New Road, Willenhall. Latches for doors or the like.

4,308. March 19, 1915.—A. G. Kew, Charter Alley, near Basingstoke, Hants. Hand chipping tool for bricklayers and mason's use.

4,783. March 27, 1915.—H. W. Hanwell, 35 Abington Street, Northampton. Plug cocks.

22,449. Nov. 13, 1914.—Joseph Breedon & Co., Ltd., and F. V. Breedon, New Mill Works, Fazeley Street, Birmingham. Water and gas taps for geysers and other gas heated hot water supply apparatus.

20,580. Oct. 6, 1914.—J. H. Collie, 28 Ashburton Road, Birkenhead. Electric-lamp holders.

20,260. Sept. 28, 1914.—A. V. St. Armande, The Villa, Nitshill, Renfrewshire, and Thos. Reid, 160 Hope Street, Glasgow. Art of preserving wood.

21,540. Oct. 26, 1914.—Harold Russell, 28 Ashbourne Road, Derby. Domestic fireplaces.

21,778. Oct. 30, 1914.—J. S. Irving, "Kenilworth," Osborne Road, South Farnborough, Hants. Flexible joints for pipes.

23,293. Nov. 30, 1914.—S. Le Fevre Varvel, 380 William Street, Melbourne, Victoria, Australia. Water heaters.

21,916. Nov. 3, 1914.—W. H. Tonks, 201 Moseley Street, Birmingham. Telescopic casement stays.

Any of the above specifications may be obtained from J. D. Roots & Co.

JUDGE MOSS, at the Rhyl County Court recently, laid down the law as to what a tenant can remove from a garden on leaving. He said that, while such things as ornamental tiles might be taken without damage to the freehold and roses in pots fastened by holdfasts might be removed, the line must be drawn at climbing roses planted in the ground as well as privet hedges and such like things, and he ordered a tenant to pay £3 3*s.* damages. The new tenant said that while defendant was in the house the garden was lovely and the best in the avenue, but now it was a disgrace. The defendant's case was that he only moved what he had planted or put down himself, and that the 30*s.* he had paid into Court would cover any damage done.

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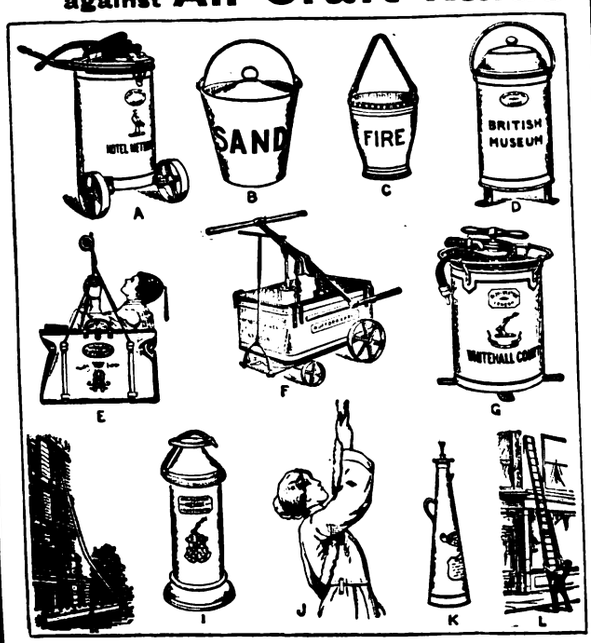
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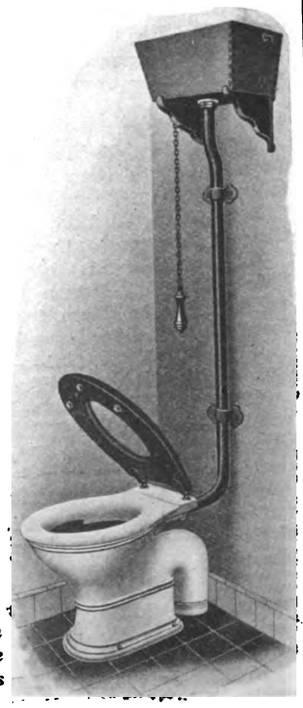
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THE ARCHITECT

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FEDERAL COUNCIL OF THE AUSTRALIAN INSTITUTES OF ARCHITECTS.

In our issue of July 30 we gave an account of the foundation of the Federal Council of the Australian Institutes of Architects, whose object is to enable the architects of the several States of the Commonwealth of Australia to speak with an united voice when the architectural profession of Australia has to address its public, and generally to maintain the position of architecture in the Commonwealth.

At a social evening arranged by the President and Council of the Royal Victorian Institute of Architects in honour of the visiting representatives of the Institutes of other States, the toast of "The Visiting Representatives" was honoured, and the speeches in reply showed harmonious sentiments and voiced congratulations on the establishment of the Federal Council.

Mr. A. W. Anderson (President of the Institute of Architects of N.S.W.), replying to the toast, reviewed the relation of his Institute to the movement for federation. The endeavour made in 1901, as time had proved, had not been based on the right lines, because unification had been aimed at. The consummation effected during the past week, however, appeared to meet all the existing —and, he thought, future—needs. What he and the other representatives had aimed at was to lay the foundations of the Federation broad and deep, in this way following the example set by the people in the formation of the political Federal institutions, which had worked so well for the whole of Australia. As Australia could now speak throughout the world with one voice, so the Federal Council of the Institutes of Architects could speak for the whole of the profession in the various States of the Commonwealth. The power conferred upon the Federal Council of acting on behalf of the Australian Architects would be of the greatest advantage in dealing with Government Departments and other public bodies, for instance, and for this purpose alone the Council had not been formed a day too soon. The Federation would also vastly improve the status of the architect, especially when registration had been effected. Personally, he thanked the Council for electing him to the high office of President, and also appointing his colleague, Mr. Newman, as Treasurer and Secretary. They would both do their best to carry out the work which would be brought before them. He was sure that his Institute would feel honoured by the appointments to which he had referred. He expressed his thanks to the Victorian Institute for the facilities given for conducting the business of the Federal Council, and for all the kindness which its members, and the Institute Council, had lavished upon the visiting representatives. Despite the hard work accomplished, the visitors had enjoyed a really good time.

Mr. C. W. Chambers (President of the Queensland Institute of Architects), replying for his State, hoped that the profession throughout Australia would actively support any action taken by the Federal Council. He was of opinion that, by its constitution, the Federal Council had sufficient machinery to deal with any question affecting the profession which might arise, but any success achieved must be through the loyalty of the architects of the Commonwealth. He was brought up in Victoria, but many years ago went to Queensland. This latter State was but in its infancy, and its resources were only now being realised. What were the possibilities of Queensland he could not foretell, but they were immense. The State possessed also a grand climate, and he invited architects from the South to pay his State a visit if they could find the opportunity, and they would see something of the vast resources of the great Northern State. Along with the President (Mr. Anderson), he thanked the Victorian Institute for the hospitality the representatives of this Conference had received during their visit to Victoria.

Mr. H. E. Fuller (President of the South Australian Institute of Architects) said that it was nearly twelve months since the Presidents of the State Institutes met at Melbourne at the request of the Minister of Home Affairs to deal with matters of the Federal Capital Competition. Much, however, had happened since that time, and it was a matter of pride with him that during his first year of office as President of the Institute of his State, it had fallen to him to be one of the Conference which had since become the Federal Council. During the present week, it had been his endeavour to do his part in laying a solid and lasting foundation strong enough to carry the weight of any superstructure which might be erected upon it. He thanked the President of the Victorian Institute (Mr. Tompkins) for all he had done, personally as well as officially, to make the visiting representatives comfortable during their stay in Victoria. He was glad that the Federal Council had accepted the invitation to hold its annual meeting in Adelaide next year, and along with his colleagues in South Australia he would do all in his power to show them the attractions of what he considered the most beautiful city in Australia.

Mr. W. Kenwood (acting representative for West Australia) said that, judged by area, his State was by far the largest in the Commonwealth, and this, he thought, made up for the lack of members in the State Institute. Yet the Institute was thoroughly alive, and had entered into the Council in a truly Federal spirit. In West Australia they would do their share in laying the foundation to suit a constitution which would grow larger as the years rolled by. He trusted that the same zeal would be shown in the future as had been exercised by the men who had the professional spirit and forethought to bring the Federal Council into existence.

Mr. Alex. North, responding for Tasmania, said he ought almost to be excused from speaking for the State he represented, because he was a member of the Victorian Institute as well as that of Tasmania. He thought, however, that when the records of the proceedings of the Federal Council were published, everyone concerned would be satisfied that an honest endeavour had been made to prepare a constitution which could be called a really good working constitution. Should it turn out otherwise he would be truly sorry, because the object in view—the uplifting of the profession—would be defeated, and a second attempt based on a previous failure, would prove a difficult task for those who might have to undertake it. He was, however, confident that the work done had been on sound lines. The smaller Institutes had been generously treated by the framers of the constitution, and he was sure that architects in Tasmania would be of this opinion when they received the report of their representatives. He was confident that

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



THE ROW, WATERGATE STREET, CHESTER.—From a Drawing by "Castra."

Chester is a town of quaint architecture and perhaps Watergate Street is the quaintest of all. At one portion of the street is an upper walk raised above the ordinary footpath, and forming a gallery approached by steps at intervals. The drawing shows a view along this gallery, a view which—when the sun is streaming through the openings between the timber uprights, throwing their shadows and those of the balusters on the flagged paving and giving interesting reflected lights on the plaster ceilings—is wonderfully picturesque.

what had been done would be considered by architects throughout Australia to have been based on right lines. He, too, would tender his thanks for the hearty welcome accorded to the visiting members from the other States.

When, however, the delegates of the New South Wales Institute returned home, they did not find the constitution of the Federal Council unanimously acceptable to their members, and a somewhat stormy meeting, though apparently a very small one, resulted in a resolution being carried by seven votes to six to the effect that the constitution of the Federal Council should be accepted "subject to legal advice," and to the addition of the following clause: "That the foregoing clauses, embodying this constitution, relate to Federal matters only and do not interfere with the constitution of the New South Wales State Institute."

The chief objections of the malcontents seem to have been to the prospect of N.S.W. architects being obliged by the votes of other States' representatives to charge 6 per cent. instead of 5 per cent., and to the future supersession of the N.S.W. Institute by a Federal Institute. A few architects in Sydney seem to be averse to Australia following the example of America in possessing a central or Federal Institute of Architects, with subordinate local chapters. It would be surprising that only thirteen should take sufficient interest in the matter to attend a meeting and vote if we did not remember how often meetings at our own Royal Institute for the revision of the schedule of charges have failed for want of a quorum.

NOTES AND COMMENTS.

It is gratifying to record that the movement for the acquisition of M. Egide Rombaux's statue, "Premier Matin," was speedily successful, and that at the Royal Academy on Thursday of last week presentation was made to the Trustees of the National Gallery of the statue. This was one of the most important and gracious events in the history of the Royal Academy. The movement for the purchase of M. Rombaux's noble work was due in the first instance entirely to the members of the Royal Academy and primarily to Sir William Goscombe John, R.A., the eminent sculptor. His enthusiastic admiration for the Belgian's work found generous emulation among his fellow-artists and in the Press.

With the active assistance of Mr. H. Hughes Stanton and Mr. D. Y. Cameron subscriptions were asked for, privately at first, and the response was most gratifying. It was felt, however, that the public ought to have an opportunity of showing their appreciation of M. Rombaux's masterpiece. An appeal was made to them, and the result was in the highest sense satisfactory. The purchase money was completed in a few days, indeed, the committee have £70 in excess of the £800 necessary to buy the "Premier Matin." The subscribers will be glad to know that the surplus will be added to the fund for the relief of distressed Belgian artists.

The statue deserves all the eulogy bestowed by Sir Edward Poynter and Lord Plymouth. It is one of the noblest artistic achievements of our age, and the appre-

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ciation of its high qualities, spiritual and technical, is a happy antidote to the sensationalism of a group of decadent young men and women.

The Earl of Plymouth raised an important point at the meeting. He said that London should not be without a gallery where works of foreign artists could be properly exhibited. What about the main galleries at the Victoria and Albert Museum? They are national property, and splendidly adapted for the exhibition of sculpture. How admirably they reveal the power of M. Mestrovic's work. In every way this museum is the right place for a collection of modern sculpture. Its purpose is mainly educational. The national art training college is housed within its precincts, and already the museum contains excellent examples of the art of Alfred Stevens, Dalou, and Rodin. The claims of the Victoria and Albert Museum should be considered before the country is asked to assist in raising a costly new sculpture gallery.

A somewhat curious situation, says the *Irish Builder*, has arisen in connection with the advertisement of the Kingstown Urban Council to architects inviting them to submit their names for appointment in connection with a scheme of working-class dwellings. The remuneration offered was 2½ per cent. upon the outlay, no payment whatever to be made in the event of the work being abandoned. The Royal Institute of Architects of Ireland asked the Council to receive a deputation, who laid their views before the Housing Committee. The Urban Council subsequently revised their terms, offering 5 per cent. upon the first house of a scheme and only 2 per cent. upon the remainder, and promising very vaguely to consider a claim for money expended by the architect, should the scheme be abandoned. The Institute thereupon asked its members not to apply for the position, or if application had already been made to withdraw it. Nevertheless at the last meeting of the Council it was announced that eleven Irish and eight English applications had been received. At the meeting of the Council it was argued that there had been a technical error in connection with the appointment, by reason of the terms having been decided by the committee and not by the Council. It was therefore decided to adjourn the appointment.

It is extremely regrettable that the Council of so important a district as Kingstown should go out of their way to cut down architects' modest remuneration to such an extent as to debar qualified members of the Institute from submitting their names. It can hardly be supposed that this is likely ultimately to be to the advantage of the ratepayers.

Mr. Frank Bramley, R.A., whose death occurred on the 10th instant, was the third son of Mr. Charles Bramley, of Fiskerton, Lincolnshire, and was born at Sibsey, near Boston, on May 6, 1857. He received his education in Lincoln, and his first art-training in the School of Art there, among his fellow-students being Mr. William Logsdail and Mr. Fred Hall. Instead of following the customary practice of young English painters then of studying in Paris, Mr. Bramley went to Antwerp, and for three years worked in Verlat's studio. A residence in Venice followed, and then, in 1884, the painter settled at Newlyn. It was here, in 1888, that was painted "A Hopeless Dawn," the canvas, bought by the Chantrey Trustees for £400 and now in the Tate Gallery, with which the painter at once leapt into popularity. Election to Associateship of the Academy followed, Bramley's companions in the honour being Mr. John Sargent, Mr. Arthur Hacker, Sir George Frampton, and the late Mr. John Swan. At the Royal Academy in 1895 appeared his "Mrs. T. R. Bolitho," the first of a long series of portraits which he contributed thereafter to its exhibitions. At the same time Mr. Bramley continued to paint interiors with figures and landscapes, almost always with an agreeable quality of surface, and frequently in an attractive scheme of purply-blue and green. One of these interiors, "A Winter's Tale," in which two girl figures are seated reading by a fire, was presented by the painter to the Anti-Socialist Union of Great Britain for the benefit of the Society's funds. Meanwhile, in 1911, Mr. Bramley was elected a full member of the Academy, but, unfortunately, he had of recent years suffered from ill-health, which no doubt prevented him from being represented in its recent exhibitions by more important canvases. He had for some time settled in Westmorland. Mr. Bramley's best known works, besides the "Hopeless Dawn," already referred to, are "Saved: Oft in a humble home a golden room is found," "For of such is the Kingdom of Heaven," "Old Memories," and "While there is life there is hope."

An article on "Dwellings in Berlin," which Mr. T. C. Horsfall, J.P., of Swanscoe Park, Rainow, publishes in the current number of the *Town-planning Review*, suggests that even in matters which concern the material comfort of her citizens Germany's claims have been exaggerated in the past. In spite of its broad streets and advantageously placed public buildings, Berlin remains one of the least satisfactory of all the capitals in Europe. This is due chiefly to an abuse of the tenement system. In the eighteenth century houses consisted of only two or three storeys, and the space between street and street was occupied by gardens. As the maintenance of a street increased in cost, the number of storeys was added to in the hope of keeping down rent, but the only effect of this was to send up the value of ground, and builders were driven to fill up virtually the whole of the intervening space between streets with side wings and parallel blocks. It is not unusual in Berlin, says Mr. Horsfall, to find as many as six courts between two streets. The result of this is an overcrowding and an insufficiency of ventilation, which have a devastating effect upon the population. The remedy lies in the opening up of fresh districts, so as to encourage the building of a great number of small detached or semi-detached houses in place of the thickly huddled tall tenements. The authorities with whom it lies to effect this, however—the town council and the executive magistracy—have done nothing to improve matters, and, if things continue as at present, are not likely to do so. And this for the very good reason that the town council is elected by a system which gives the majority of votes to the large taxpayers—generally landowners interested in keeping up rents.

The principal Bavarian art societies have issued a joint appeal to the public to sacrifice inartistic copper, brass, and nickel objects for the Fatherland. The circular says that intelligent public bodies can doubtless find monuments unworthy of the personage or event commemorated which would yield great quantities of metals which the army now so greatly needs, and, further, cemeteries might sacrifice a large number of monuments to such a sacred purpose. We are not yet in England hard up for metals, but we could very well follow the advice of the Bavarian art societies and devote some of our "monuments" to the service of the Ministry of Munitions.

Mr. John Simpson, the well-known Matlock antiquary, has made some interesting discoveries in regard to the old-time footpaths through the Peak of Derbyshire. He stated recently: "A path is traceable from the district east of Shuckstone Cross through Lea, Cromford, and Bonsall to Youlgreave, and thence to Buxton and beyond, which appears to bear evidence of pre-historic origin. It runs about fourteen miles parallel with a Roman road; at the top of Winster it is two miles and a quarter from the Roman road at Minnington; at Youlgreave it is two miles seven furlongs from the Roman road at Arbor Low; at Monyash the distance apart is one mile, at Flagg one mile one furlong, at Kingssterndale one mile one furlong, and at Staden half a mile, gradually converging until it crosses the Roman road at Sherbrook.

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The path is absolutely independent of the Roman roads, and though running parallel with one for several miles, and crossing it at Buxton, it has no obvious connection with it anywhere. It is noteworthy that there are Roman camps near to each of these crossings. Not only does the path pass through places of pre-historic interest, such as Bilberry Knoll, Matlock, Cromford Bridge, Robin Hood's Stride, the Nine Ladies' Circle, the Castle Ring at Harthill Moor, Bradford, Youlgreave, the Deep Dale Cave, and Staden Low, but it passes through a country dotted with tumuli for miles, and it has also a direct connection with known pre-historic sites at a distance. There is no great divergence from a straight line anywhere in the path. An examination just made of the route discovered the path to have been diverted in places, but it is there all the same."

In the *Dundee Advertiser* is an interesting description of an old Greek church in Lemnos, which is of more than local interest as being from a Dundee machine gunner who writes:—

"I paid a most intensely interesting visit to a little Greek church while at Lemnos. It was a plain oblong stone building, situated on a high, lonely knoll, facing the sea. There was a porch in front, reminiscent of an early Etruscan temple. The building was very primitive. Inside were stone flags, a quaint canopied pulpit, and a row of panels at the far end, curtained, and crudely painted with symbolic religious pictures. Above was a row of the saints. Behind the panels was a little antechamber, with stone recesses containing Communion cloths.

"In the porch was a flight of stone steps leading to a vault. I descended, nearly breaking my neck in the process, as the stairs were in a very rickety condition. When I got to the bottom I struck a match, and, stooping under a stone lintel, I found myself in a little chamber, with a domed roof, and a well with holy water in one corner. There was a small cup above it, and the flags were covered with straw. Stepping out, I could see a patch of bright sunlight at the far opening, and an iron-barred window of the church. The walls were damp, and a thick haze hung over them."

The Apothecaries' Hall, Water Lane, Blackfriars—a quaint relic of old times surviving in modern and dull surroundings—is about to undergo some changes. The adjoining Mill House, where the Apothecaries grind and weigh their drugs, is to be pulled down in order to widen the thoroughfare. The Apothecaries have been in Water Lane a long time. They were there for more than a hundred years before John Filby, the tailor, opened his shop in the lane and supplied Goldsmith with those flaming bloom-coloured coats that were the object of the poet's foppishness and the rude jests of his literary friends. The Society of Apothecaries of London built their first hall in 1633. It was destroyed by the Great Fire of 1666, rebuilt ten years later, and enlarged in 1786. The Mill House contained many curious contrivances for grinding, weighing, and preserving drugs that were in use before the days of steam power and machinery. A new factory has been erected, where the work of the society in the preparation of pure drugs will be carried on, and the removal of the old Mill will not affect the Apothecaries Hall itself.

In the annual report on the health of the burgh of Greenock for 1914 by Dr. William S. Cook, Medical Officer of Health, it is stated that the vital statistics compare favourably with those of the previous year, but there is a different story to tell with regard to housing, in which Greenock, like many other towns, is suffering and will suffer from the policy of the Government in respect of building.

With regard to the dearth of houses in the burgh suitable for the labouring and artisan classes, and the consequent overcrowding and the difficulty and delay in effecting the proper remedies under the Housing Acts, Dr. Cook states there has been little appreciable improvement during the year under review, for while trade conditions continued active and the resident population consequently high, there was little increase in the available housing accommodation. Dr. Cook remarks that it is a great misfortune that the proposed scheme for building two apartment houses and a small proportion of one apartment houses on a central site was delayed during the spring and summer owing to the Local Government Board inquiry till the onset of the European war, as this has led to a serious delay and handicap in the solution of the most urgent part of the housing problem in Greenock—namely, the provision of shelter for families at present occupying houses scheduled under the Housing Acts. "These houses are utterly unfit to live in, and the occupants are placed in conditions such as to be dangerous to themselves and the community. For public health reasons alone, the Corporation should provide first for these people, as it has been conclusively shown that private enterprise can never do so. The problem is much too great and too urgent to be dealt with indirectly, such as by providing houses for artisans and leaving the poorer classes to find any houses they can when turned out. This, under present conditions, they can only do by overcrowding other houses to a greater extent than ever, to the further danger of public health. In my opinion, the Corporation, so far as building is concerned, should have their hands full for some years to come in providing for the bare necessities of the labouring classes. The Corporation should, at the same time, do everything in its power to stimulate and encourage private building for the benefit of the artisan class who can afford to pay economic rents. I am of opinion, after careful consideration, that the best way to do this will be by the preparation of town-planning schemes for suitable areas. The great advantages to be secured by these schemes through providing for open spaces, prescribing the proportion of the total site that may be occupied by buildings, restricting the number of houses per acre, relaxing the building by-laws, providing for cheaper street construction, and generally prescribing for more economical development would go far to encourage builders to set up houses suitable for artisans."

Sir Laurence Gomme, in his introduction to Volume I. of Comparative Municipal Statistics, just issued by the London County Council, refers to the question of the birthplace of residential Londoners.

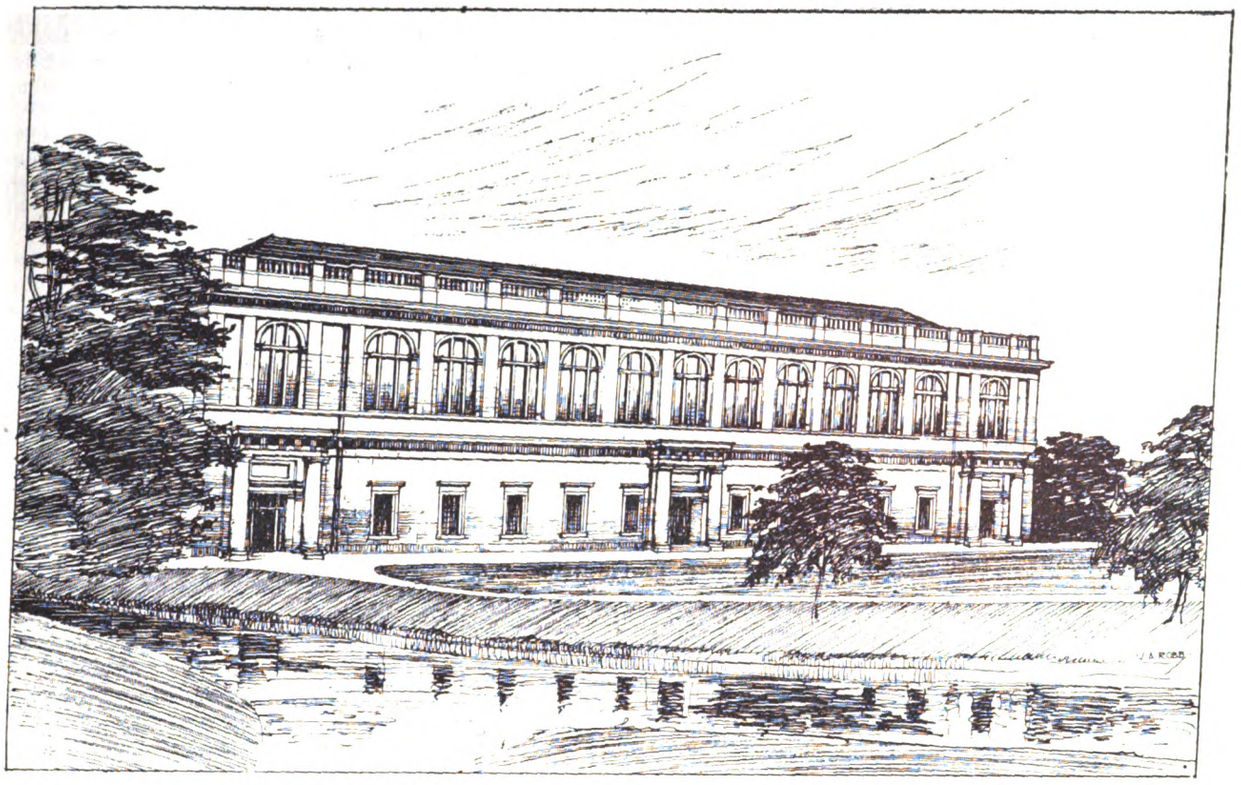
"This," he writes, "has long been of interest to students of sociology, and it has been frequently declared that there are few, if any, cases of Londoners having a London ancestry for several generations. Comparative tables show that the native-born population of London compares favourably with the native-born averages in other cities. The least favourable factor is that of foreigners, who at the census of 1911 totalled up to 153,004, representing 3.4 per cent. of the population—a proportion nearly twice as great as that of the next city in numerical order—viz., Cardiff, with only 1.8 per cent. The largest number of the foreigners resident in London come from Russia, with a total of 44,799; Germany, with a total of 30,065; Russian Poland, 25,934; France, 14,080; and Italy, 11,798. London has always been cosmopolitan in this respect, and the evidence of the municipal archives of the City illustrates how in the past it has benefited from the way in which it has welcomed foreigners in spite of the restrictions and objections which the native citizens frequently put forward.

"The problems of the present day under this head are not governed by the same rule as those of the Middle Ages. Capital and commerce have become more cosmopolitan, and labour is beginning to follow suit. The result of these forces is to bring into so important a trading centre as London a larger proportion of foreign settlers than would, in ordinary circumstances, be considered advisable."

Mr. Geoffrey Drage, who has written the preface to

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



TRINITY COLLEGE LIBRARY, CAMBRIDGE.—VIEW OF RIVER FRONT.—From a Drawing by Mr. Wm. A. Robb.

The great library of Trinity College, Cambridge, was designed by Sir Christopher Wren. The building, which is a long rectangular block, has two very fine frontages. The principal front faces Nevile's Court, but the other façade which faces the river Cam, although not so elaborate and showy in design, is perhaps the more superior of the two. The exterior here exactly expresses the interior with the loggia beneath, the blank space for the bookcases, and the row of large windows over the bookcases. The library is quite an early work of Wren. It was commenced in 1675 and completed in 1695 at a cost of 17,000*l*. He rendered his services gratuitously for the carrying out of the work. This he probably did because he was a great friend of Dr. Barrow, who was the Master of Trinity from 1673 to 1677. Two designs were drawn out for the building. The first was circular in plan 90 feet high by 65 feet in circumference, covered with a dome and cupola. This idea of his was actually carried out at the Radcliffe Library, Oxford, by James Gibbs. The first design was not adopted owing to the College deciding to lengthen Nevile's Court, thus rendering the circular design unworkable. Wren is said to have got his inspiration for the present design from the library of St. Mark's, Venice.

In a letter to Dr. Barrow with reference to the river front of the library, Wren speaks of it as being designed "after a plainer manner to be formed most with Ashler, the three portalls, one against each cloister and one in the middle, and the pavillions for the stairs give it grace enough for the viewes that way."

The library is built of Ketton stone, which is yellow with pink stains, but the crowning balustrade and the entablature to the ground floor doorways are, for some reason which it is not easy to see, executed in Portland stone.

Robert Grumbold was the mason for the work, and there are records of his having visited London eight times to consult Sir Christopher while the building was under construction.

Wren evidently took considerable pains over the building, designing even the chairs and tables, and giving full-size sections of all the mouldings.

The woodwork, which is of very fine design, and is of Normandy oak, was made by Cornelius Austen, who twice visited Wren regarding it. The wood carving is by Grinling Gibbons.

The four statues on the Nevile's Court façade, which represent Divinity, Law, Physic and Mathematics, were cut by Gabriel Cibber in 1681.

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the volume, points out that its first object is to ascertain whether any economies can be effected by a yearly comparison of the cost of municipal services; in other words, whether any standard of expenditure on particular services can be laid down even approximately. "This raises," he states, "a great number of interesting problems about which there is at present far too little annual information available. The comparisons involve calculations of great difficulty and complexity. For instance, taking the figures for the year 1912-13 (London, 1911-12) it seems at first sight as if London has a great deal to learn in the matter of economy. The total net cost of general municipal services per head of the population in London that year was 66*s*. 11.9*d*., while that of the six next largest English towns was as follows:—Birmingham 41*s*. 9.2*d*., Liverpool 48*s*. 1.1*d*., Manchester 53*s*. 1.7*d*., Sheffield 39*s*. 11.7*d*., Leeds 48*s*. 6*d*., Bristol 46*s*., the average being about 47*s*. Taking the individual services education cost about 8*s*. 6*d*. per head more in London than the average cost in the other six towns, and police about 4*s*. 6*d*. per head more. These two services alone account for over 64 per cent. of the total excess of the cost in London over the average of the other towns. If, however, the total net cost per pound of assessable value be taken, the figure for London was 5*s*. 11.7*d*., and the average for the other six towns about 8*s*."

The house famine in Birmingham is said to be the principal cause of the increased rents in regard to which complaint was made at the last meeting of the Trades Council. The present demand for houses in the city is probably unprecedented, and, as an example of the rapidity with which properties are taken up, a busy

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estate agent declares that it is a common experience for a house advertised as vacant in the noon edition of the *Birmingham Daily Mail* to be let a few minutes later, while would-be tenants besiege his office for three days afterwards. But the shortage of houses, although the principal, is only one of a number of causes of the raising of rents in Birmingham by amounts varying from 5 per cent. to 12½ per cent., and of these other causes the most important is the raising of the rate of interest on mortgages. The question of interest on mortgages is, in fact, receiving the very serious attention of property owners' associations throughout the country, for, since the issuing of the war loans, lenders of money on mortgage have been, in a number of instances, expeditious in taking steps to enhance the value of their investments. A few days ago the Sheffield Property Owners' Association issued a circular letter dealing with the matter, in which they appealed to kindred associations not to countenance any increase in the rate of interest, "not only as a question of justice to the owner, but also as a matter of national interest." Since the mortgagee suffered no diminution of income from his loan, except income tax, the letter stated, it followed that the rate of interest would be an absolute profit to the mortgagee and an absolute loss to the owner.

The Birmingham Property Owners' Association, through their secretary (Mr. A. J. Wilson), took the matter further than this, and requested the Government to take action; but their efforts have not been successful. In a letter addressed to the Prime Minister, the Chancellor of the Exchequer, and other members of the Government, the Association asked that a short bill, or an amendment of the Courts (Emergency Powers) Act, should be introduced providing that during the war and for a suitable period afterwards no interest on mortgages should be increased in excess of 4½ per cent. where the interest was punctually paid, except it be shown that the security was in jeopardy by reason of the mortgagor's neglect or default. To this request the Chancellor of the Exchequer replied that he did not see his way to introduce legislation to curtail the rights of mortgagees to raise the interest on their mortgages, and the other members of the Government approached were content to send formal acknowledgements.

WAR ITEMS.

Mr. G. Dobson, British Pro-Consul at Petrograd, has issued a circular in which he points out the opening there is for increasing British trade with Russia. Without counting the participation of Austria, Germany has exported to Russia trade to the value of between 500,000,000 to 600,000,000 roubles annually, and he suggests that if British firms will adapt themselves properly they can capture the greater part of this. Many firms (he writes) are hesitating until after the conclusion of peace, when they think they will be better able to take advantage of this splendid opportunity. This is a mistake, for, meanwhile, other nations are alert and active. Competition is being vigorously organised by Americans, Canadians, Swedes, and Danes, and Germans are pouring into Scandinavia to resume their old game of the "honest broker" between England and Russia. Thousands of Germans who are now interned will return to their Russian business as soon as peace is proclaimed, as if nothing had happened. No time, therefore, should be lost by British exporters in getting into touch with Russian buyers, whose usual supplies from Germany are now cut off. In England there seems to be a belief that Germany's suspended trade in Russia will be secured by inducing crowds of young men to learn the Russian language. Accordingly, the London County Council is imparting instruction in this difficult tongue in its evening institutes for a merely nominal fee, which makes the lessons practically free. But Russian enquirers after British goods cannot afford to wait until Englishmen become linguists. This plan will probably only tend to swell the ranks of candidates for situations in Russia as clerks and tutors, who already represent a supply for which there is no adequate demand. It fails to provide available men and means for pushing British trade in Russia.

It is a mistake to suppose that Germany's commercial success in Russia has been due in any great measure to the study of the Russian language. German trade in Russia has been built up through the aid and co-operation of hundreds of thousands of German settlers there, who are born Russian subjects, and whose forbears have belonged to Russia for ages. They are obliged to learn Russian at school, but keep up their German at home. German schools also flourish in their midst. These Russian Germans prefer, of course, to deal with their kith and kin across the border. To such an extent has this operated in favour of German commerce that before the war the German language had almost become the business medium in all the great centres of Russian trade. This was wisely encouraged by the German Government. Every facility was given for Germans resident abroad to retain or resume their German nationality, and thus to Germanise the world. It is much to be regretted that the British Government has been doing just the very reverse. There are at least three million British subjects in foreign countries, most of them as loyal and patriotic as anybody in the British Isles, and amongst these voluntary exiles, whose sons are joining Kitchener's Army and fighting the nation's battles, our authorities are carrying on a veritable persecution.

On January 1 of this year a most incomprehensible Act of Parliament came into force whereby the second generation of foreign-born Britishers are indiscriminately deprived of their national birthright. Such an extraordinary measure must have been completely overlooked by the British public. The wording of the Act is most obscure, but this interpretation is adopted by the British authorities. It was bad enough before, when children of the third generation born abroad of British parents were made outcasts by the action of the British Government. This curtailment of British nationality turns the children of faithful British subjects into aliens before they are old enough to choose for themselves, and, as regards Russia in particular, it makes outlaws of infant Britons, whom the Russian Government very properly refuses to accept as Russian subjects. It is to be hoped that this short-sighted policy of the British Government in repudiating Britons abroad will not be followed by British manufacturers and merchants, who, on the contrary, should make use of their fellow countrymen in Russia. This can only properly be done by means of a permanent museum of British goods at Petrograd, and a yearly exhibition of samples at the great fair at Nijni-Novgorod. The question of a museum at Petrograd requires negotiation, but arrangements for the exhibition at Nijni-Novgorod are actually ready and available.

ILLUSTRATIONS.

BOARD OF TRADE OFFICE.—COMPETITION DESIGN.

From the report submitted to the assessors of the above competition by Mr. A. Randall Wells we take the following particulars:

The author of this design considered that it would not be satisfactory to make any attempt by way of screens or piers to connect the new building to the Banqueting Hall or to the back of the Royal United Service Institution. The heights and proportions of the proposed building are so different that it was thought that no scheme could be satisfactory that did not involve radical alterations to the back of the United Service Institution. The chief need seemed to be space in which to see the Banqueting Hall, either from Whitehall Gardens or Horse Guards Avenue, and the provision of a building that, besides being a unit in itself, would form a good background, upon a sympathetic plane, for the serene beauty of Inigo Jones's building. Nothing could be more delightful than the present view of the back of this building seen through the poplar trees of Whitehall

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Gardens, and it was with the greatest regret the author found it was impossible to save these trees. The suggestion is to plant the same kind of poplars upon an island, so that from different points of view both the old and the new buildings would have the advantage of being seen through grey green poplar trees. The gardens on the Embankment side would be set out to emphasise the lines of the building and to give the passer-by the pleasure of suddenly seeing a sharp perspective view of long herbaceous borders and of white figures set against a background of trees.

Without in any way hampering the design for the completed building the author tried so to arrange his scheme that the first portion should make a symmetrical building in itself necessarily inferior in main proportions to the complete design, but not obtrusively temporary or disorderly.

The author has not been influenced by any desire for novelty and sincerely deprecates any attempt at originality as a motive for design. If the design here shown seems at first sight unusual, it is believed that a closer examination will show it to be a reasonable development of architecture and the logical outcome of the requirements of the building in question, and of modern materials and methods of construction based upon a type of English architecture that in the past successfully dealt with buildings containing rooms of various sizes.

In a town where for many months in the year the light is not good the need for the maximum of windows in an office building can hardly be over-emphasised. The necessary multiplicity of openings has been reduced to architectural order expressed in the piers and beams of a construction based upon an intimate composition of stone and reinforced concrete. The building is divided into simple masses with divisions and subdivisions so proportioned and related to one another that, while each minor subdivision has the reasonable completeness—to make an analogy—of a twig, and each greater division that of a branch, the whole would have something of the unity and simplicity of the complete tree, and would be grasped easily by the eye either in detail or mass.

Not to go beyond the purpose of the building, the author has used pure ornament with restraint, limiting it almost entirely to the treatment of the chimneys, the screens completing the quadrangles (and shielding the basement skylights), and to the figures of Hermes—the god of Trade and Travel—and Poseidon—the god of the Sea—which, standing upon detached pillars, mark the four entrances. The figures would be in white stone with the feathered wings of Hermes' hat and heels and the webbed wings of Poseidon in bronze.

For two reasons the building has been planned with no room looking into internal courts. The first, that in public buildings, of which the general public do not see the inside, the architecture should be externally as expressive as possible, and this, it is thought, precludes the use of large internal courts, and points to the use of what the author believes to be an essentially impressive form—the quadrangle or court of which the fourth side is but a low wall or screen. The second, that especially in a high building the light in rooms looking on an internal court is defective and the rooms unpleasant to work in. To give light and air to the main corridors there are two internal courts with their long axes running north and south, so that they would receive any sunshine there was.

OXFORD COLLEGE SERIES.—NEW COLLEGE. Nos. 152 AND 153.

WE this week give further views of New College in continuation of the series commenced last week, when a short historical description of the college was given. The writer of the descriptive article should have made acknowledgment of his indebtedness to Mr. Aymer Vallance's "Old Colleges of Oxford" for his facts and for some paragraphs. Mr. Vallance's book is published by B. T. Batsford, Ltd., and may be regarded as the leading authority on the subject of the old colleges of Oxford.

HER MAJESTY THE QUEEN having approved of the scheme for the purchase of the famous "Star and Garter" Hotel at Richmond for a permanent home for disabled soldiers and sailors, the Council of the Auctioneers' and Estate Agents' Institute have entered into an interesting project with the object of securing the necessary funds. The building, which cost over £80,000, is admirably suited for the purpose to which it is to be devoted, and the amount required for its purchase is £21,500.

ROYAL COLLEGE OF ART, LONDON.

THE following extracts from the prospectus of the Royal College of Art are intended especially to furnish an idea of the advantages offered to students of architecture:—

The Royal College of Art is maintained for the purpose of training art masters and mistresses for the United Kingdom, and for the instruction of students in drawing, painting, modelling, and designing, for architecture, manufactures, and decoration. While the Royal College of Art is primarily intended for the instruction of students selected by competition in the art examinations of the Board of Education, other students are admitted, so far as there may be accommodation for them, on the payment of fees.

The Full Associateship is granted to students who have qualified in the four schools of the college.

The Schools Associateship is granted to students who have qualified in whatever school of the college is selected by them.

Certificates of Merit may be awarded to students.

ENTRANCE TESTS AND EXAMINATIONS FOR FULL ASSOCIATESHIP COURSE.

(*a*) Candidates not exempted from this requirement who desire to enter for the course of instruction for the Full Associateship must submit, a fortnight before the end of a term, or half-term, or in the case of candidates wishing to enter the college in October who are unable to submit the works earlier, three weeks before the beginning of the session, a folio of drawings as mentioned below:—

Architecture.—A measured study in pencil upon an Imperial sheet of some portion of an ancient building to the scale of not less than ½ inch to 1 foot; also a drawing of mouldings, full size, and of some ornament.

Sculpture.—Two studies from a nude figure, to fill an Imperial sheet, carefully drawn with the point.

Painting.—(1) A drawing in pencil or chalk of an antique figure; (2) an anatomical drawing (bones and muscles) of the same figure; (3) drawings, in chalk or pencil, from the life, full size, of a head, hand, and foot.

Ornament and Design.—Three very careful drawings of flowers and foliage, one in pencil, one in water-colour, one in pen and ink, all from the same subject. A sheet of lettering done from good Roman capitals. The selection of a good plain type is essential.

(*b*) Candidates who have had works accepted for the Art Class Teacher's or Art Master's Certificates, or who have obtained awards in the National Competition for work in subjects similar to those required, will not be called on to submit works in those subjects. Candidates wishing to take advantage of this privilege should submit with their applications a list of the successes they have obtained.

(*c*) If these drawings are accepted, candidates must take test examinations in the four subjects, of which they must pass in three. Such test examinations will be held before the commencement of each term and half-term.

The following are the subjects for the test:—

Architecture.—A drawing of a small architectural object in the Victoria and Albert Museum selected for the purpose. Time allowed, six hours.

Sculpture.—A model in clay of an eye from Michael Angelo's "David." Time allowed, six hours.

Painting.—(1) A drawing, in chalk or pencil, to fill an Imperial sheet, of an antique figure. Time allowed, five hours.

(2) A drawing, in chalk or pencil, from the life, full size, of a head, hand, and foot. Time allowed, nine hours.

Ornament and Design.—A drawing from memory of a piece of foliage such as that of the oak, ash, or lime.

Lettering by hand of a given sentence, and a simple problem in designing, for a particular purpose, to fill a given space. Time allowed, nine hours.

ENTRANCE TESTS AND EXAMINATIONS FOR SCHOOLS ASSOCIATESHIP COURSE.

A candidate who desires to enter for the course of instruction for the Schools Associateship (*i.e.*, to specialise in one or other of the four schools) must state the school to which he desires to be admitted. His application, with the required works, where exemption is not given from this requirement, must be submitted a fortnight before the end of each term or half-term, or in the case of candidates wishing to enter the college in October who are unable to

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submit the works earlier, three weeks before the beginning of the session.

For the School of Architecture.

(*a*) The works to be submitted by a candidate are five drawings, half double-elephant size, as follows:—

1 and 2. Examples of two of the Greek and Roman orders of architecture. Each drawing should have two columns of one order complete, the columns being not less than 10 inches high, with details three times the scale of the column, and diagrams showing the application of the drawing to the whole building.

3. A drawing of Classic detail from the round, shaded.

4 and 5. Two sheets of measured drawings of an existing building or portion of a building.

(*b*) Candidates who have had works accepted for the Art Class Teacher's or Art Master's Certificates, or who have obtained awards in the National Competition for work in subjects similar to those required, will not be called on to submit works in those subjects. Candidates wishing to take advantage of this privilege should submit with their applications a list of the successes they have obtained.

(*c*) The examination or test of the candidate at the college consists of making a drawing, to be plotted on the spot, from measurement, and executed in five days, of some architectural object in the Victoria and Albert Museum selected for the purpose. Time allowed, six days.

Conditions of Grant of Full Associateship.

(*a*) In order to be entitled to the Full Associateship of the college students must:—

1. Have studied in the college for at least six terms; have spent at least one term in each school of the college; and have been not less than four terms in the Upper Division of one or more schools of the college.

2. Have obtained a First-class Certificate in the Upper Division of one of the schools of the college, and either a First-class Certificate in the Lower Division or a Second-class Certificate in the Upper Division of each of the other three schools.

3. Have executed a composition for a given decorative subject to the satisfaction of the visitors.

(*b*) The Full Associateship will also be granted to those students who have passed satisfactorily through at least two years' training in the college (or National Art Training School) before October 1900; have obtained the Art Master's Certificate, Group I.; and certificates for two other groups.

Conditions of Grant of Schools Associateship.

In order to be entitled to the Schools Associateship of the college students must:—

1. Have been at least four terms in the college; have spent one term in the School of Architecture, unless previously qualified in that subject; and have been at least three terms in the Upper Division of the school in which they have specialised.

2. Have passed satisfactorily through the introductory course of architecture, or have been exempted from that course, and have obtained a First-class Certificate in the Upper Division of the school in which they have specialised.

3. Have executed a composition for a given decorative subject to the satisfaction of the visitors.

Privileges of Associates.

(*a*) Students gaining the Full Associateship of the college are at present qualified for recognition as principal teachers of schools of art. But attention is called to the terms of Article 46 of the Board's Regulations for Technical Schools, Schools of Art, &c., and students entering the college who contemplate becoming teachers should obtain the Board's Rules as to the issue of Teaching Certificates for Teachers of Art (Rule 109) referred to therein, and make themselves familiar with the conditions under which the Board will be prepared to endorse diplomas of Full Associateship with Teaching Certificates.

(*b*) Students gaining the Full Associateship of the college are entitled to wear a hood and gown, and to use after their names the letters A.R.C.A. (London).

(*c*) Students gaining the Schools Associateship are entitled to wear a hood and gown, and to use after their names the letters A.R.C.A. (London), with the title of the school or schools in which they have specialised—*e.g.*, A.R.C.A. (London) (Architecture).

Applications for the Diploma of Associateship should be addressed to the Registrar, Royal College of Art, South Kensington, London, S.W.

ROYAL COLLEGE OF ART ARCHITECTURAL COURSE.

Professor—A. Beresford Pite, F.R.I.B.A.

Assistant Instructor—A. E. Martin, A.R.C.A. (London).

The Architectural School consists of a Lower and of an Upper Division.

The Lower Division provides a general architectural course adapted for all students entering the college, unless previously qualified in the subject, and usually extends to one term only.

The Upper Division is divided into two sections:—

(1) The ordinary course which is adapted for general students who desire to continue the study of architectural design; and

(2) The advanced course which is undertaken by specialised students who propose to become teachers, architects, or workers in the building crafts.

Students intending to specialise in architecture are advised to undertake the Lower Division course of study before entering upon the courses of the Upper Division.

The ordinary and advanced courses of the Upper Division are available for students who, having taken the Lower Division course on entering, afterwards specialised in one of the other schools of the college.

The following syllabus is varied in subjects and detail each year, but the courses and methods of study indicated are generally adhered to.

Advanced students in the Upper Division undertake special studies other than those set forth in the syllabus, as approved by the Professor.

Lower Division.

The course of the first term includes the following syllabus of English Woodwork and Masonry, and of Greek and Italian Renaissance Architecture.

English Woodwork.

I. Measured drawings of objects in the Victoria and Albert Museum:—

(*a*) Small-scale studies, forming a series illustrative of the historical development of framing and of the employment of mouldings and carved ornaments.

(*b*) Full-size working drawing, suitable for a practical workman, of one example in the museum.

II. Lectures with lantern photographic illustrations will be given on the historical development of woodwork ornament.

III. Series of studies from photographs and plates of ancient examples of internal treatment of rooms, &c.

IV. A subject in design based upon the foregoing studies will be given—*e.g.*, the panelling and fitting-up of a portion of a modern building, with working and detailed drawings, full-size mouldings and carving.

English Mediæval Masonry.

I. Course of lectures on English Mediæval Masonry, illustrated by lantern photographs, dealing with the development of ecclesiastical buildings from the Saxon till the Tudor period, and especially with vaulting and the progress of craftsmanship as illustrated in mouldings and carving.

II. Series of geometrical sketches from published drawings of ancient examples.

III. Visits to examples of mediæval building in and near London, and to selected modern churches.

IV. Full-size templates of pier mouldings including archivolts and vaulting ribs.

V. Subject in design based upon the foregoing studies for some portion of an ecclesiastical building including a vault. Drawn to ½-inch scale with the vaulting geometrically projected, and with the mouldings and springer full size.

Greek Architecture.

I. Course of lectures on the development of Greek Architecture in Asia and Europe, and on the buildings of the Acropolis at Athens, illustrated by lantern photographs and diagrams.

II. Small studies of the proportions of the Doric and Ionic orders, accompanied by full-size sections of mouldings.

III. Visits to the British Museum and to buildings in London of the early nineteenth century in the Grecian style.

IV. Subject in design illustrating the picturesque effect

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of symmetrical treatment—*e.g.*, in columnar architecture in perspective.

Italian Renaissance.

I. Course of lectures on the work of the architects of Florence and Northern Italy in the fifteenth and sixteenth centuries—*i.e.*, from the completion of the Duomo at Florence to that of St. Peter's, Rome, with lantern photographs and diargams.

II. Series of geometrical sketches from plans and photographs of the development of civil buildings.

III. Measured drawings and sketches from casts and objects in the Victoria and Albert Museum illustrating the development of Renaissance ornament and the employment of sculpture in conjunction with architectural forms.

IV. Subject in design based upon a phase of the Renaissance or upon the work of a master, involving the treatment of ornament for a monument, fountain, pulpit, &c.

V. Copy studies of selected examples of coloured decoration of the Early Renaissance.

UPPER DIVISION.

Ordinary Course.

This course consists of the detailed design of one or more subjects, with a series of precedents.

The subjects illustrate the combination of architecture with colour decoration and sculpture.

Careful measured studies of Greek marbles in the British Museum, and of other ancient examples are undertaken by students in this course as special subjects.

Visits are paid to buildings illustrative of the subjects of study, and outdoor sketching is undertaken on these occasions.

A syllabus of the principal subjects for design is prepared for each term; among these have been included:—

A pavilion for the International Exhibition, with an open loggia decorated in colour.

The decoration of the sanctuary of an Italian Renaissance Church.

A club-house for a country town, with ornamental plaster ceilings and panelled staircase.

A town mansion, with hall, staircase, and drawing-room decorated in colour.

A public square, with fountain.

The detailed syllabus of one term's subjects is set out below to illustrate the course of study.

Domed Architecture.

I. Course of lectures on the progress of domed building from Roman to Byzantine, and to the Renaissance, illustrated with lantern photographs and diagrams.

II. Series of small-scale studies, dated and noted, with part plan elevation and section of each, from drawings and photographs:—

(*a*) *Roman.*—Pantheon, Rome; Baths of Gallienus, Rome.

(*b*) *Byzantine.*—St. Sophia, Constantinople; St. Mark, Venice.

(*c*) *Renaissance.*—Duomo, Florence; St. Peter, Rome; St. Paul, London; Pantheon, Paris.

III. Subject for design involving the use of a dome, as a cemetery chapel in a campo santo, or a church in a tropical climate. The style to be some phase of Christian architecture—*e.g.*, Romanesque or Early Christian—comprising a decorative scheme in mosaic or fresco:—

(*a*) Working drawings to small scale and perspective sketch.

(*b*) Larger detail of a portion of the chapel.

(*c*) Small-scale scheme showing colour treatment in fresco or mosaic, without figures or ornamental details.

(*d*) Complementary to above: colour scheme, including figure composition, &c.

(*e*) Ornamental details in colour.

Advanced Course.

As in the ordinary course of this Division, the subjects proposed to the advanced students include architectural design in combination with the allied arts of decorative painting and sculpture, and in conjunction with the handicrafts of ornamental wood and metal work.

One subject is selected each session; the first term is devoted to preliminary designs and to the study of precedents, the architectural and technical aspects of the design being first considered; the second term's work is the study and design of the decorative portions of the subject, the preparation and completion of working and detail drawings that would be required for the due execution of the proposed work.

Among the subjects dealt with have been:—

A town church in the Renaissance manner decorated in colour.

A college chapel in the English Mediæval manner with stallwork and vaulting fully detailed.

A country residence for a Prince as a subject in domestic architecture.

A naval monument for St. Paul's Cathedral.

The syllabus of the studies for the latter design is set out below to indicate the course of study in the subject of the combination of sculpture and architecture.

The outline syllabus for the study of colour decoration and architecture, and the general syllabus of English domestic architecture are also added.

SCULPTURE AND ARCHITECTURE.

I. Series of historical studies made from casts and marbles in the Victoria and Albert and British Museums of the employment of sculpture in architecture: illustrating position and purpose of sculpture as well as character, with plans and elevations.

Greek.

(*a*) Pediment and frieze—*e.g.*, figures enclosed by architecture. Parthenon and Theseum.

(*b*) Tomb steles. Low-relief free figures. Tower of the Winds. Pergamos.

(*c*) Detached figures. Monuments. The Mausolus quadriga. Nike of Samothrace.

(*d*) Figures attached in architecture. Caryatids. Erechtheum.

(*e*) Decorated columns and pedestals—*e.g.*, Ephesus.

Romanesque and Early Mediæval.

Studies in Victoria and Albert Museum and from photographs and drawings in the Library:—

(*a*) Portal, Cathedral Santiago di Compostella, from cast in the Victoria and Albert Museum.

(*b*) Portal, Moissac. Beaulieu.

(*c*) Caryatid Piers, St. Trophime, Arles.

(*d*) Friezes on lintels. St. Trophime, St. Giles, St. Marthe, Tarascon.

(*e*) Free use on elevations. Poitiers. St. Jouin de Marne.

(*f*) Employment in panels. St. Amande de Boixe. Selles sur Cher. Dax. St. Paul de Varax.

Mediæval.

From casts in the Victoria and Albert Museum:—

(*a*) Figure of Christ from the Portal of Amiens, and key diagram of position. Three sets of figures from Auxerre, and key. Group from St. Sebald's Church, Nuremberg, by Adam Kraft, and key sketch.

Studies from photographs and drawings:—

(*b*) Scheme of west front, Wells Cathedral. Interior south transept, Westminster Abbey. Angel choir, Lincoln Cathedral.

(*c*) Distribution of sculpture and schemes. Porches, Chartres Cathedral. Notre Dame, Paris, west front. St. Pierre sous Vezelay. The Abbey, Vezelay.

Renaissance.

Series of studies from casts in the Victoria and Albert Museum, sketch elevations and plans.

Italian Pre-Renaissance.

School of Pisani. Pisa, Baptistery pulpit, Cathedral pulpit. Milan, shrine of St. Peter Martyr.

Cinque Cento.—(*a*) Ghiberti. Florence Baptistery, north and east gates. (*b*) Donatello. Annunciation from St. Croce, Florence. (*c*) Mino da Fiesole and Sansovino.

Michael Angelo.

Studies of composition: (*a*) Sistine Chapel, frescoes, groups. (*b*) Medici Tombs, Florence. (*c*) Bronze panel.

II. Series of sketch designs in historic styles. A mausoleum. The entrance to a campo santo.

III. Design for a monumental tomb in St. Paul's Cathedral, commemorating a hero. Small-scale sketches, working drawings, large-scale details, perspectives or models, the arrangement of sculpture being fully designed.

ENGLISH DOMESTIC ARCHITECTURE.

I. Course of lectures on the historical development of house planning in England.

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II. Studies made from illustrations of examples: (*a*) Prior to Elizabethan. (*b*) Elizabethan and Jacobean. (*c*) The works of Inigo Jones and Wren, and until Chambers. (*d*) The Victorian revivals.

Plans and sketch elevations with characteristic details. Position of gardens, names of rooms. Notes as to date, locality, and materials.

III. Exercises in design in the manner of the first three periods mentioned above.

IV. Design for a modern residence with working drawings, and some portion fully detailed for wood or stonework.

V. Internal decoration of hall or drawing-room in colour.

COLOUR DECORATION OF ARCHITECTURE.

I. Series of studies copied from drawings in the Art Library, and sketches from models in the Museum: to illustrate rise of Renaissance School.

II. Analytical notes of each example giving some particulars of architectural situation and treatment, and of the system of colour decoration and ornament.

III. Preparation of design for treatment in colour of a portion of a Renaissance monument or building—*e.g.*, the sanctuary of Sta. Chiara, Florence: in the Victoria and Albert Museum.

IV. Large-scale details of coloured ornament.

V. Employment of coloured materials constructively and for surface enrichment.

VI. Mediæval colour decoration, studies of decorated rereloses, and other objects in the Museum.

Students in the Advanced Course undertake special surveys of ancient monuments as complete records, and archæological restorations of Greek buildings.

Full-size cartoons have been prepared of the order of the Mausoleum at Halicarnassos with a small-scale restoration.

Diagram, one-eighth full size, of the order of the Parthenon.

Complete surveys of important buildings abroad are made by the travelling students of this school, and are worked out and completed in the college; among these have been: The Pazzi Chapel, Florence; the decorated church at Saronno, near Milan; the domed church at Montepulciano; and the Massimi Palace at Rome.

Among English monuments that have been surveyed and drawn are: All Hallows Church, Lombard Street, with the fittings of metal, marble, and carved woodwork; and the Abbey of Christchurch, Hampshire.

Complete ground-plan survey of Westminster Abbey to a large scale.

LONDON COUNTY COUNCIL EDUCATION COMMITTEE.

THE Accommodation and Attendance Sub-Committee has presented a statement as follows:—

In submitting the following statement as to the progress made with the "forty and forty-eight" scheme during the first triennial period ended March 31, 1915, attention should be drawn to the fact that the works completed during the year ended March 31, 1915, and the works in the builders' hands on that date, were undertaken before the issue of the Treasury Minute with regard to the restriction of capital expenditure owing to the war.

In connection with the scheme, which is to be completed within a period of fifteen years from March 31, 1915, the Council on July 23, 1912, agreed (*a*) to complete certain new schools, enlargements, and adaptations, and to remodel or rebuild certain old schools within three years from March 31, 1912; (*b*) to complete the modernising of certain schools within five years from March 31, 1912; (*c*) to commence the structural work in connection with the modernising of certain schools within five years from March 31, 1912; (*d*) to reduce the accommodation of 1,000 classrooms to the new maxima within five years from March 31, 1912; and (*e*) to provide 24,000 school places in each triennial period by means of new schools and the enlargement or improvement of existing schools. It should be added that, in connection with the scheme, the Board of Education drew attention to the problem of "noisy" schools, and steps are being taken to deal with this question.

Owing to unforeseen circumstances it has been necessary to make certain variations in the three years' programme, and on March 31, 1915, this included the following works: The erection of twelve new schools, the enlargement of fifteen existing schools, the adaptation as elementary schools of three pupil teachers' centres or secondary schools, and the modernising of twenty-three existing schools.

A statement of the progress made during the first three years is submitted below. The first part gives a summary of the work done, the second part gives detailed statements.

SUMMARY OF PROGRESS.

(*a*) *Work to be completed by March* 31, 1915.

Twelve New Schools.—Six schools (3,688 places) have been completed; three schools (3,304 places) will probably be completed by the end of the summer holidays, 1915; one school (996 places) will be completed in November, another school (1,480 places) in December, and the remaining school (996 places) early in 1916.

Enlargement of Fifteen Schools.—In the case of twelve schools (3,084 places) the work has been completed; the work will be completed shortly in the case of two others (448 places); and the enlargement of the remaining school (468 places) will probably be completed by the end of the summer holidays, 1915.

Three Adaptations.—Two of the adaptations (507 places) have been completed, and the remaining case will probably be completed by the end of July, 1915.

Twenty-three Schools to be Modernised.—Of the twenty-three schools specified for completion by March 31, 1915, sixteen have been finished; in two cases the modernising will probably be completed shortly, in one case by the end of the summer holidays, 1915, and in three cases by Christmas, 1915. With regard to the remaining school, one section of the work has been completed.

(*b*) *Work to be completed within five years from March* 31, 1912.

Of the twelve schools, the modernising of which is to be completed by March 31, 1917, a tender has been accepted in four cases (the Haverstock Hill, Grafton Road, Winchester Street, and Wolverley Street schools); plans have been approved in three cases (the Pritchards Road, St. Paul's Road, and Burrage Grove schools); in one case (the London Fields school) plans are under consideration; and in the remaining four cases plans are not yet in hand.

(*c*) *Work to be commenced within five years from March* 31, 1912.

Of the ten schools the modernising of which is to be commenced by March 31, 1917, in two cases (the Victoria and Southampton Streets schools) a tender has been accepted; in three cases (the Sumner Road, the Neckinger, and Webb Streets schools) plans have been approved; in one case (the Jessop Road school) plans are under consideration; and in the remaining four cases plans are not yet in hand.

(*d*) *Classrooms the accommodation of which has been reduced to the "40 and 48" maxima during the three years ended March* 31, 1915.

Nine hundred and ninety-five classrooms in existing schools, previously recognised for more than forty or forty-eight children, have been replaced by classrooms with accommodation within the new maxima, either by modernising old schools, carrying out minor structural alterations, or writing down the accommodation. There will, therefore, remain only five classrooms to be replaced or written down by March 31, 1917, in order to comply with the agreement with the Board of Education.

(*e*) *Number of additional school places provided and initiated.*

Of the 24,000 permanent school places (including those in the "minimum" programme) which the Council undertook to provide by March 31, 1915 (the end of the first triennial period), 14,339 places had been completed by March 31, 1915, whilst tenders had at that date been accepted for proposals involving a net addition of 10,059 further places, the contract date for completion in these cases being a date prior to March 31, 1915. Owing, however, to labour troubles in 1914, it was not found possible to adhere to the contract dates for completion. If the work had been completed by the contract dates, the total number of places provided in three years would have been 24,398.

In addition to the places referred to above, the Council had at March 31, 1915, decided on the provision of 66,342 new places, of which 6,690 were in the contractors' hands. Details of these places and the stage which the various proposals had reached at March 31, 1915, are given in the statements submitted later.

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(f) Action taken with regard to noisy schools.

In the case of twenty-eight noisy schools steps have been taken to overcome the difficulties arising from the noise of traffic. In the case of sixteen other schools steps will be taken. In fourteen cases it does not seem possible to take any action or it has not been considered necessary to do so.

Detailed Statements.

Statements showing in detail as to the position at March 31, 1915, of the proposals included in the minimum programme and other proposals for additional accommodation, &c., followed. They were:—

(A) Statement showing the position on March 31, 1915, of each of the cases included in the minimum programme.

(B) Statement showing the position on March 31, 1915, of all proposals for elementary-school provision other than those included in the minimum programme.

(C) Summary showing the position at March 31, 1915, of all proposals for elementary-school provision, including work completed since March 31, 1912.

(D) Statement showing the number of classrooms previously accommodating more than forty or forty-eight and replaced by rooms within the forty and forty-eight maxima during the three years ended March 31, 1915.

(E) Statement showing the additional permanent school places opened during the three years ended March 31, 1915.

(F) Statement showing the temporary schools opened during the three years ended March 31, 1915.

(G) Statement showing the action taken during the three years ended March 31, 1915, with regard to the acquisition of sites for new schools, enlargements, and modernising of old schools.

(H) Statement showing the action taken by the Council with regard to noisy schools during the three years ended March 31, 1915.

CONSTANTIN MEUNIER AND THE BELGIAN SCULPTORS OF HIS TIME.*

By Paul Lambotte, Director of Fine Arts in the Belgian Ministry of Science and Art.

(Concluded from last week.)

Constantin Meunier, of course, won fame very late in life. Long did he struggle alone, and misunderstood before he was at last appreciated. For a number of years he sought for self-expression in painting. While his canvases are undeniably interesting as proof of the religious tendency of his mind, yet they seem uncertain and incomplete. Examples are "L'Enterrement d'un Trappiste" (Courtrai Museum), "St. Sebastien," and "Le Martyre de St. Etienne" (Ghent Museum). Meunier, under the influence of Charles Degroux, devoted himself to lofty and laborious subjects. His art was severe and repelling, despite that large charity which always inspired him.

In 1880 Meunier painted a big panel called "La Fonte de l'Acier" as decoration for a temporary *salle de fêtes*. This seems to have at last suggested and fixed his career.

Camille Lemonnier, the writer, had declared that after J. F. Millet, the first sincere and sympathetic interpreter of the peasantry, the factory worker would in his turn find a painter. Camille Lemonnier, with the divination of a great art critic, undoubtedly helped Meunier to discover and attain his proper sphere. Lemonnier thus recounts the episode:—

"Constantin Meunier was going on for fifty when I got to know him. His life had been a hard one and jarred by many blows. Already were weighed down the shoulders which have since been weighted with grief and labour. I conceived the idea of asking him to supply drawings for the chapters dealing with the industries of the country in my book entitled 'Belgium.' His grave and compassionate nature thus came into contact with the Black Country—as I was the first to call it. One afternoon we descended to the terrace of the Château of Mons. Under a slow and ceaseless deluge of smoke the atmosphere had become contaminated with fuliginous tints. An eddying pall of soot from the high chimneys covered the anæmic and devastated fields. The shock was so great as we found ourselves suddenly looking at the murky horizon, the stage for sombre struggles, that for a long time neither of us spoke. From our lofty view-point, sweeping over the great plain, we gazed into the very heart of the coal district. The artist, who was about to become the thoughtful and sensitive introducer of its people into art, scarcely knew then that melancholy countryside which inspired him later with a new presentment of humanity. That moment of his life was a grave one. It decided his reputation; it opened art to the fierce people who lived under the shadow. Sombre and powerful designs suddenly revealed the place which industrial labour was able to occupy. In 1882 an exhibition of works by Constantin Meunier, paintings and drawings (no sculpture as yet), demonstrated the significance of his experiments. Charcoal drawings coloured like paintings, drawings made with two strokes of the pencil, biting and rough sketches full of movement. Everywhere one found precise observation, an unfailing appreciation of those signs which characterise the rapid change from day to night, an attention which never wearied in seizing movement in all its intensity and mobility. All this was the observation of a very modern mind. Here was no trace of sentimentality in the worker such as he painted, heroic and coarse, accomplishing his dangerous tasks heedless of Death which awaits him at the end."

At this time Meunier produced such canvases as "La Descente des Mineurs," "Le Pays Noir," "Le Creuset"—which he executed later in sculpture—"L'Accrochage," "Les Hiercheuses," and "L'Hécatombe."

Soon he was finally to give himself up to sculpture, but something momentarily intervened.

Meunier had acted as the Director of the School of Design at Louvain. Always poor, the salary was not sufficient for him to live on, and he had petitioned the Government for a grant under the form of a commission. Eventually he was instructed to paint a copy of a curious Flemish old master, Pedro Campagna; and he had to go to Seville to do it.

Spain momentarily deflected Meunier from the Black Country. After several months he returned to Belgium, bringing with him the expected copy—a mediocre work—and some sketch-books, rough drafts, from which he was to get his "Cigarièrs de Séville," a painting unique among his work, and housed in Brussels Museum.

Fortunately, Meunier soon forgot Spain and returned to the Borinage, to the workers in iron, coal, and glass, whose brutal and epic fascination he was to show.

His first efforts in sculpture appeared. After some years they gained fame and the foundations of a fortune for him. Nevertheless he did not throw up painting and designing. As Camille Lemonnier explains, "the canvas and paper which he covered with great lines were often the synthesis of the work which he took up later in marble or bronze." Constantin Meunier was born to be unfortunate. Scarcely had he escaped from the torture of pecuniary embarrassments when death snatched away his two boys, and one of his daughters was visited by a malady which for a long time rendered her an invalid. His great sympathetic heart was drawn towards the humble, and in the figures or scenes which he executed the life of the poor was exalted and transfigured by the expressive eloquence of his sympathy and emotion. There then appeared that succession of masterpieces, "Le Débardeur d'Anvers." "L'Homme à la Tenaille," "Le Marteleur," "Le Puddleur," "La Hiercheuse," "L'Enfant Prodigue," "Le Vieux Cheval de Mine," that imposing group "Cheval à l'Abreuvoir," erected in a square at Brussels, and "La Pietà," and "Le Grisou," and many others, both large and small.

Meunier's sculpture was appearing at the time when the generous idea of contemporary Socialism was beginning to open its eyes to the sufferings of the workers, and to preach a doctrine of fraternal pity. His art had an intellectual appeal, and his pathos was due to higher qualities than mere merits of technique in execution. Undoubtedly Meunier was a gifted sculptor possessing a feeling for volume, masses, and grouping; but it is not by the superficial beauty of his work that he arrests attention. He is often monotonous, a little limited in his repetition of certain forms, of certain effects which appear and reappear without having refound in the model any fresh inspiration.

The sculpture of Meunier has been described as a painter's sculpture. It is, perhaps, rather an intellectual sculpture, and by the side of works by Joseph Lambeaux, for example, of which I spoke to you just now, the difference is striking. Lambeaux without culture, without sensitiveness, a fine workman creating out of the void. Meunier reflective, intense, poignant, indifferent to contour, to the charm of a beautiful work well done, to the fashion which makes precious each square inch of surface in marble or

* From a lecture delivered in French before the Royal Society of Arts.

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bronze. On the one hand sensuality, on the other a pathetic appeal.

The "Monument au Travail" stands as the high-water mark in Meunier's career. It was, moreover, both his largest and most celebrated work. The title has due prestige. Writers did not fail to lavish on it a thousand enthusiastic and ingenious comments.

Every masterpiece achieved by a genius in his intellectual maturity contains more of thought, feeling, and inwardness than the artist had intended. Instinctively Meunier, without meaning to, makes us feel many of the things which had been absorbed during his lifetime into his noble heart and gentle mind, but which he would not have deemed himself capable of expressing in form and matter. The emotion of an artist is contagious, inspiring by a sort of magnetism the minds of all who approach it sympathetically and seek to grasp its entire significance.

Meunier died before the constituent parts of this "Monument" were brought together. And the various bas-reliefs and statues which were to have formed a single entity have remained detached ever since. It makes a strange story and one worth narrating. Meunier just completed the model of the fourth and last bas-relief. He never lived to see it realised in its ultimate material—the stone carving being carried out only after his death.

The "Monument" ought to comprise four great bas-reliefs, and either five or six statues. One says "five or six" because several architectural arrangements were tried for the best grouping of the sculpture, and not one of them was definitely adopted. Meunier himself had sometimes grouped certain statues together, and sometimes dispersed them. He modelled bas-reliefs and figures without any settled scheme for their being brought together in such a way as to serve as the embodiment of one single thought. One or two bas-reliefs and two or three statues were already in existence before the idea of a "Monument au Travail" took shape. Moreover, these were all of different dimensions and to a different scale. And when Meunier came to create the complementary features, he showed the same whimsical indifference to the proportions of his earlier parts. This fact, of course, was by no means calculated to simplify matters in any final assemblage.

The essential elements are the four great bas-reliefs symbolising the Labours of Mining, of Metallurgy, of Harvesting, and of Shipping. Or, if one prefers it, they stand for the Four Elements; for in this masterpiece, modern though it be, the primordial and simplest conceptions of the oldest humanity are apparent. The Mine is the Earth; Metallurgy, with its curtain of flame behind the iron-workers, is Fire; the Harvest is the Air; and the Shipping is Water.

The complementary statues represent workers at rest. The old man; the man in the fulness of his strength; the young workman and mother with their robust children—the latter being in addition the obvious and traditional personification of Abundance or of Charity.

Finally a Sower, whose pose symbolises the Future with all its promise, was to crown the whole with a gesture as eternal as the recurrence of the Earth's seasons.

Meunier at one time thought of bringing the group of the mother and her sons forward to the base of the inclined planes carrying the monumental mass. In that event another statue of a seated worker would have been incorporated into the scheme.

When the Belgian Government negotiated with the artist and became exclusive owner of the "Monument au Travail," no grouping of its constituent parts had seemed satisfactory, nor had one been decided upon. The legal agreement stated simply that the pieces of sculpture composing the monument should be put together and exhibited, according to an arrangement to be entered into, in one of the galleries of the Palais des Beaux-Arts—the construction of which had been decided upon and was about to be commenced immediately.

Let me state at once that a surprise vote in the Belgian Legislature, annulling a former decision and transferring to other purposes the grants of credit previously agreed upon, caused this building project to be abandoned. In consequence the conditions laid down in the contract were broken. It is now, and doubtless will be for many years to come, impossible to place the "Monument au Travail" in a special gallery of the Palais—which ought to be called the Mont des Arts. Far less than ever now does the scheme appear capable of realisation.

It is assuredly desirable that the "Monument au Travail" should be at last erected in the open air—everyone seems agreed upon this point. Artists, men of letters, art critics, all are unanimous about it. It only remains to find the site and the general disposition. The Belgian Government, as in duty bound, have busied themselves in the matter. A site for the masterpiece has been suggested at Brussels, the capital of the kingdom; at Antwerp, the principal seaport; at Charleroi or Mons, centres of the industrial country; at Louvain, in commemoration of Constantin Meunier living in the town, and where for a long time he acted as Director of the School of Design. It seems right that the choice of Brussels should have won the day with the greatest number of votes. But even in Brussels, or, rather, in the vast aggregation of more than 600,000 inhabitants which bears that name, eligible sites are numerous, and each has its champions. Heated discussions have arisen on the subject. Some would place the monument at the commencement of the Bois de la Cambre, others at the second central circus of the Avenue de Tervueren; broad and fashionable promenades frequented by the leisured and by strangers. But both stand at some short distance from the very heart of Brussels, where other enthusiasts would like to set the monument up amongst the bustle and life of commerce. Others, again, contend in favour of the shipping quarter—for Brussels, being linked up by canals to the rivers of Belgium and to the sea, has a shipping quarter—which, moreover, impinges on the factories and workshops of the populous suburbs.

The "Monument au Travail" would seem to have a message for crowds, for masses of workers; the authorities may well hesitate before banishing it to any lonely spot or to the sleepy contemplation of avenues and grass-plots.

An even more burning question is that of the form which should be given to the monument, and of the architectural setting to be adopted.

Constantin Meunier fixed nothing. He at first thought of an arrangement in the manner of a hemicycle, and a sketch by him has been found suggesting that. Then, at the time when Meunier worked with Van der Stappen on the decoration of the Botanical Gardens in Brussels, the idea of the hemicycle, under the influence of Van der Stappen, was abandoned. A Viennese architect was consulted, and supplied yet another idea. In this connection it is worth noting that Van der Stappen, on his side, adopted a hemicycle arrangement in the model of his monument to the "L'Infinie Bonté" which he was then preparing, and of which the studies and fragments actually carried out reveal so strongly the influence of Meunier. The Viennese architect suggested a cube, heavy and massive, having a bas-relief on each of its faces, a statue at each angle, and the figure of the Sower surmounting the whole. This was, be it said with all respect, rather in the manner of an enormous biscuit-jar placed on a pedestal and surmounted, as with the knob of a lid, by the statue of the Sower.

The Belgian Government has experimented with these two suggestions, rough models of both being prepared to full size at considerable expense.

In 1905, in connection with a retrospective exhibition of Belgian art, and but a short time after the decease of the master, a memorial exhibition was brought together of Meunier's work. In the very heart of that exhibition, which embodied the whole effort of Belgian art during three-quarters of a century, and where each master was represented by a collection of his work, Constantin Meunier enjoyed the lion's share. Several galleries were given up to him exclusively. In the middle of the largest the architect Acker, another great Belgian who has gone, set up the hemicycle bearing the four famous bas-reliefs, each of which being flanked by its accompanying statues. In front the Sower was placed. A sober arrangement of steps, mouldings, and cornices framed the major sculpture. All the differences in scale, size, and rendering, to which reference has just now been made, were ingeniously glossed over. The ensemble was moving both in its grandeur and in its simplicity. No one who suddenly stood in front of this eloquent masterpiece could fail to feel its effect. Men removed their hats, women were silenced—for a moment. It was easy to believe the whole problem was solved. But the varying interests concerned were not yet satisfied. A solution was paralysed by the opposition of Meunier's heirs.

More recently Louvain has had a commemorative exhibition of the work of Constantin Meunier. The Belgian Government largely helped towards the expense. A new model, in conformity this time with the plan of the Viennese architect, was set up in the courtyard of one of the principal institutes attached to the University. Canon

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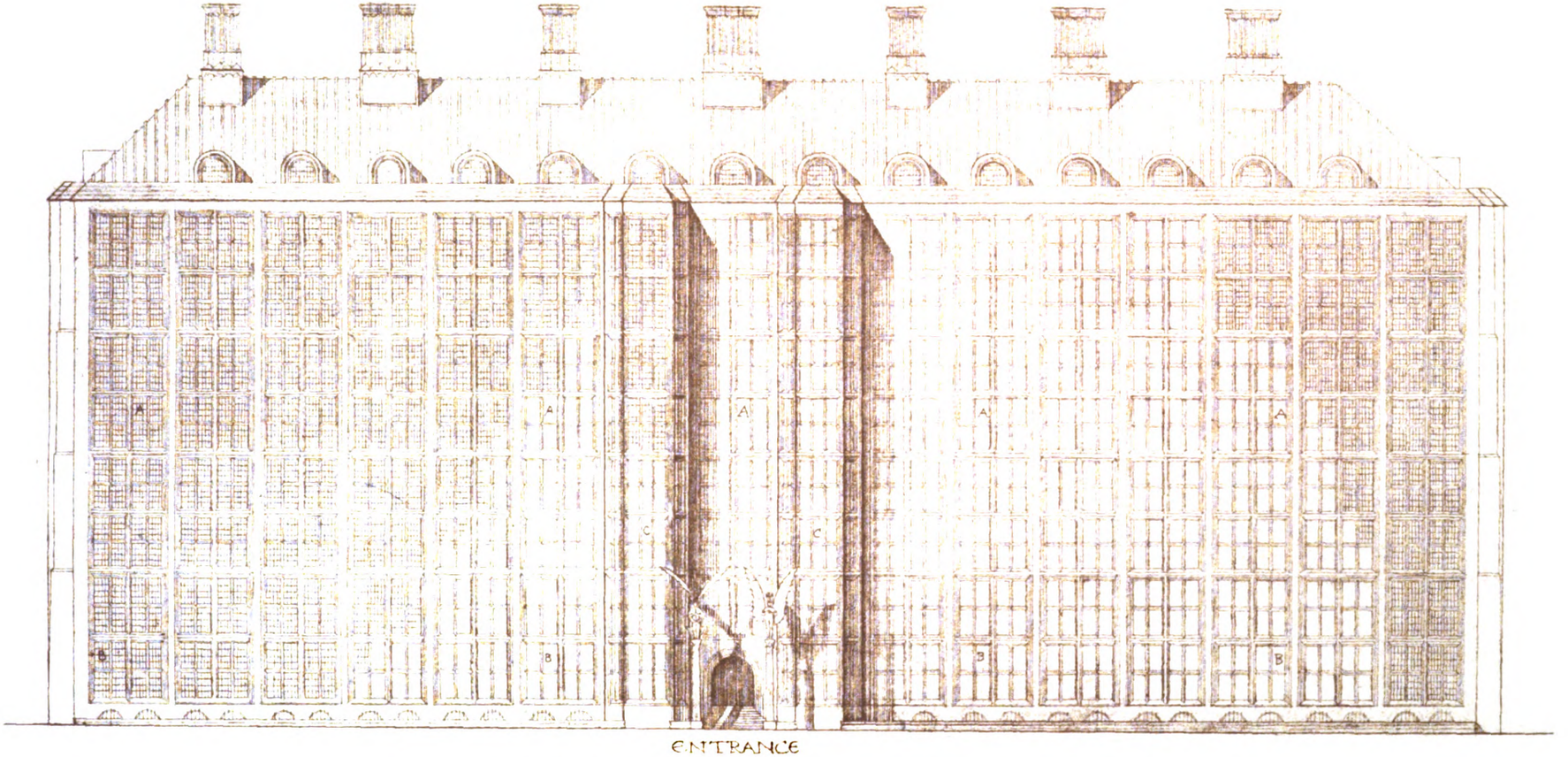
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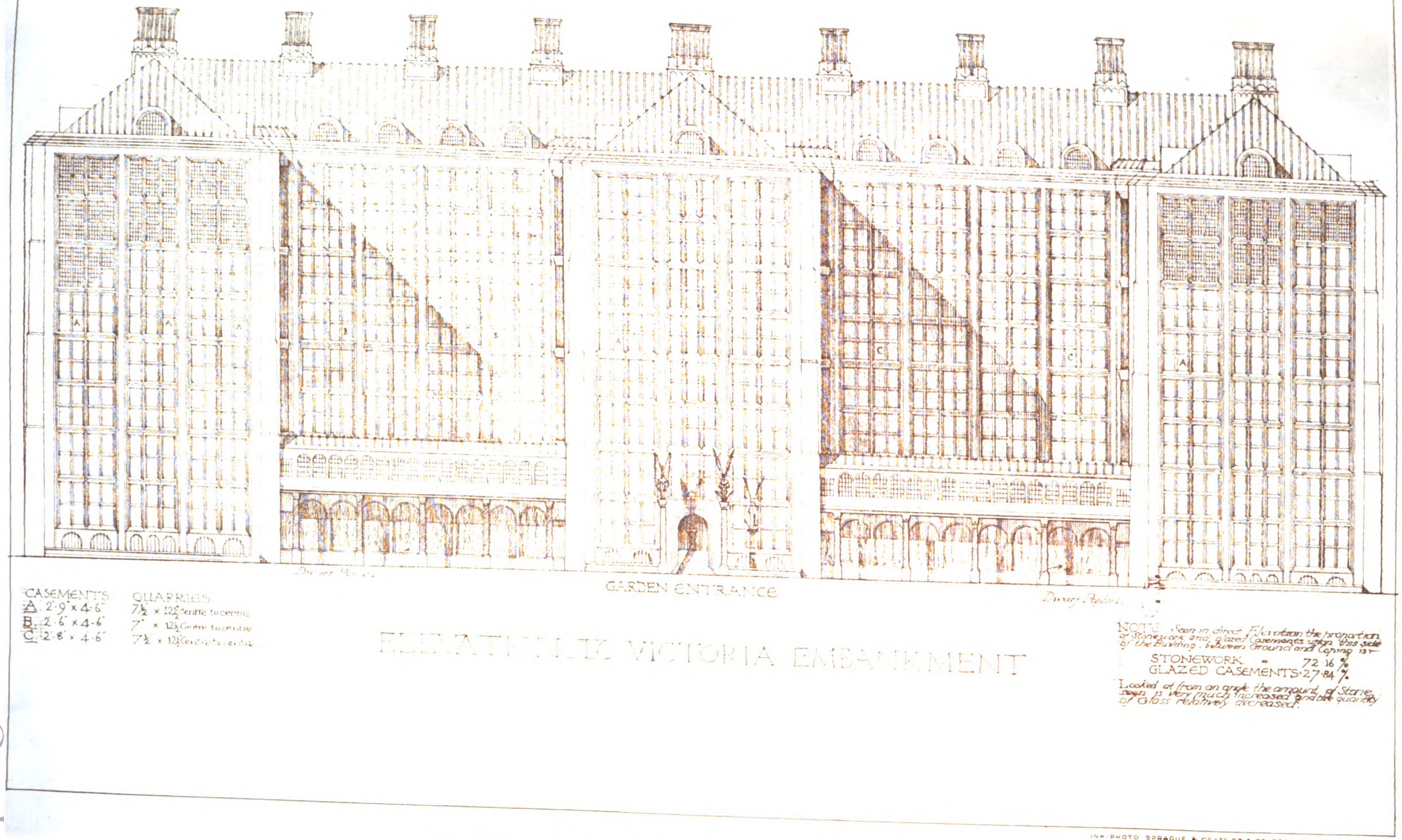
UNIVERSITY

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ELEVATION TO HORSEGUARDS AVENUE

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GARDEN ENTRANCE

CASEMENTS
A. 2'-9" x 4'-6"
B. 2'-6" x 4'-6"
C. 2'-8" x 4'-6"

QUARRIES
7½" x 12½" centre to centre
7" x 12½" centre to centre
7½" x 12½" centre to centre

ELEVATION TO VICTORIA EMBANKMENT

NOTE. Seen in direct Elevation the proportion of Stonework and Glazed Casements upon this side of the Building, between Ground and Coping is:—

STONEWORK = 72·16 %
GLAZED CASEMENTS 27·84 %

Looked at from an angle the amount of Stone seen is very much increased and the quantity of Glass relatively decreased.

INK-PHOTO SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

COMPETITION DESIGN FOR NEW BOARD OF TRADE OFFICES.

By Mr. A. RANDALL WELLS.

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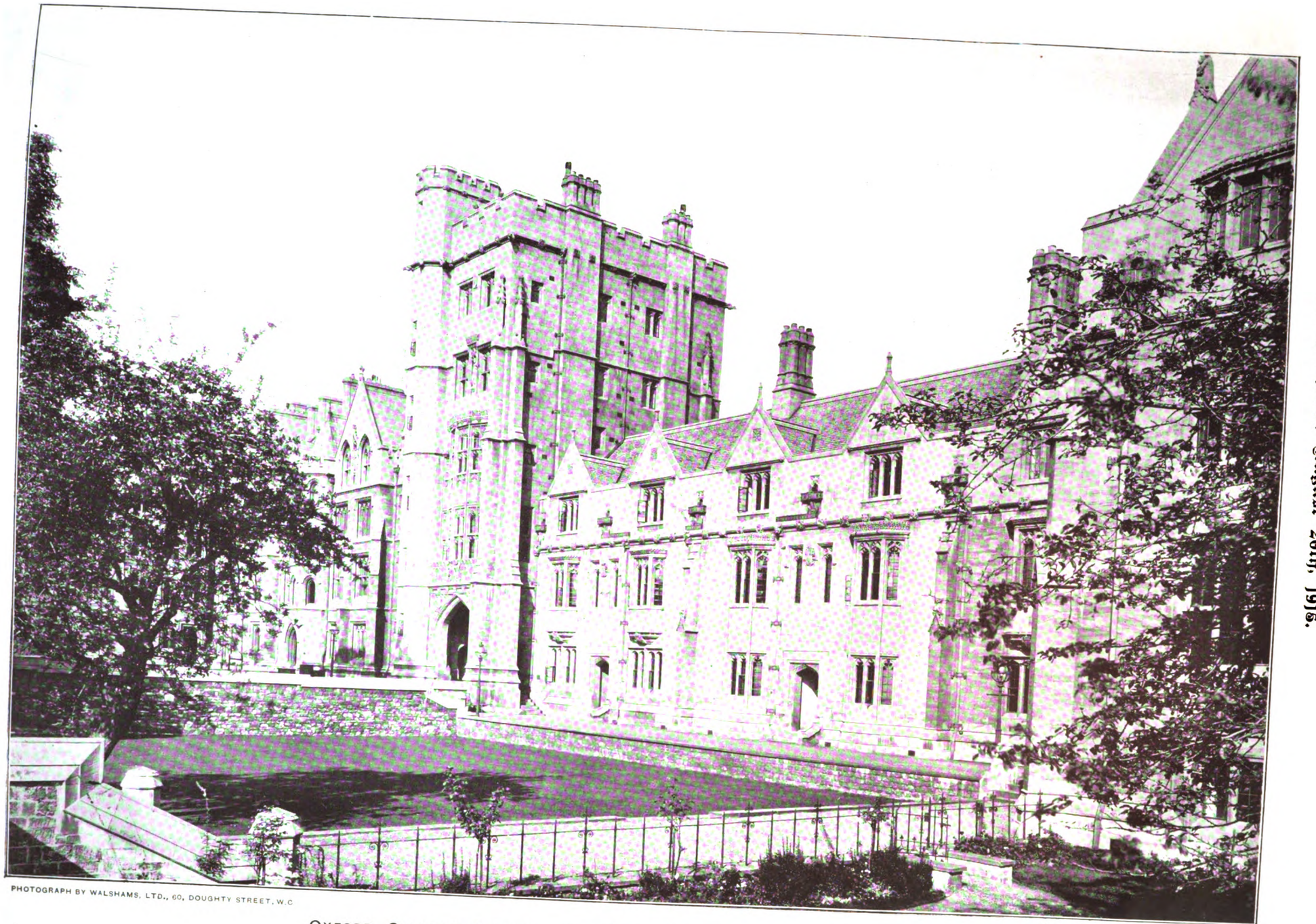
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PHOTOGRAPH BY WALSHAMS LTD., 60, DOUGHTY STREET, W.C.

OXFORD COLLEGE SERIES. NO. 152.—NEW COLLEGE FROM LAWN.

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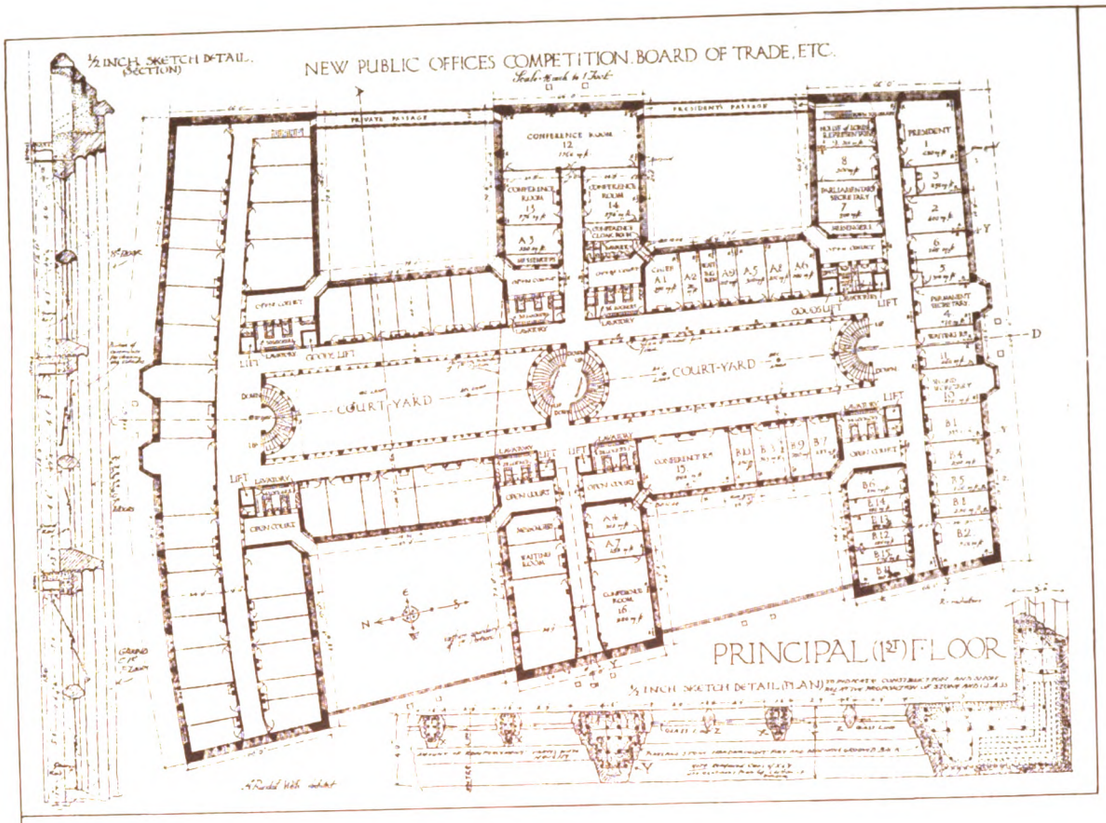
OXFORD COLLEGE SERIES. NO. 153.—NEW COLLEGE: NEW BUILDINGS.

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Thiéry was indefatigable in his enthusiasm, neither his money nor his trouble being spared. He was anxious to fix definitely the arrangement of the masterpiece and hoped to keep at Louvain a duplicate of the model. Brussels had set up the alternative arrangement, namely, the hemicycle; the former had shown the bas-reliefs in bronze, the other the bas-reliefs in stone. Belgium was thus enriched with two essentially different versions of the "Monument au Travail." Unfortunately the Louvain model, as likewise that of Brussels, was dismantled without anything being settled.

The bust of Constantin Meunier by Victor Rousseau, which is in the Brussels Museum, is a marvellously expressive rendering of the face of the old master. Rousseau had worked for a long time at it in Meunier's Atelier without achieving much satisfaction. In despair he one day carried home with him the lump of clay, and for some time left it in a corner. But the thought of the portrait continued to haunt him, and suddenly he recommenced feverishly on it. In a few hours he succeeded in catching that synthetic expression which was so characteristic of Meunier.

As the name of Victor Rousseau has been mentioned a few words may be said about him. In spite of the fact that he was quite young at the time of Meunier's death, already one could predict for Rousseau the splendid career which was about to be opened for him.

Like Meunier, Rousseau is an intellectual sculptor who has never allowed his care for the plastic forms to get in front of expressive thought. Each work by Rousseau possesses significance and meaning. It makes one reflect. The spectator is interested and his attention piqued before admiring the art of the sculptor, truly remarkable though be the technique. There is no need to expatiate on this subject. London has had the opportunity of seeing some marvellous works by him—busts, statuettes, and fragments. All marked by a fresh and delicate grace. But this is only one side to the art of Rousseau. In such extremely important and large compositions as "Sœurs de l'Illusion" (in the Brussels Museum) or the "Groupe de la Maturité" (commissioned for a public place) he knew how to combine with perfection of form a rare understanding of the moral significance to which art ought to attain. How far removed are these mature works from those figures of "Bathers" or "Models at Rest," with which usually the restricted imaginations of artists is content—beautiful figures very often, but inert, with a well-balanced plasticity which no interior life could make breathe!

Mention must be made of artists who were less young at the time of the death of the master than Victor Rousseau, and who had already won a considerable and legitimate reputation, such as Thomas Vinçotte, the Comte Jacques de Lalaing, G. de Groot, L. Mignon, &c.

Vinçotte is the great official sculptor. But, quite unlike many official sculptors, Vinçotte possesses a talent which is lofty, free, and refined. He never makes any sacrifice to conventional banalties. He remains sincere and true in each of his conceptions, and he aspires always to do better, to do something more intense, and with more feeling. It may happen that he deceives himself, but it never happens that he is mediocre or indifferent, and this cannot usually be said of official sculptors. In Vinçotte the portraitist is incomparable. He excels in bringing to light the distinctive traits of the model; he is a revealer of character and temperament, sometimes to the point of indiscretion.

Count de Lalaing occupies a very prominent position in the Belgian school of sculpture. The heir to one of the country's greatest and oldest names, he has consecrated himself to art with the utmost fervour. He is an indefatigable worker; the number of his productions is already enormous, and he is literally overwhelmed by new commissions. His generosity is equalled by his disinterestedness, and often his fellow-artists have reproached him with ruining the profession by his excess of delicacy. Almost always the sculptor is content with a bare return for the cost of materials in carrying out his work in bronze or marble, and makes a present of his own handiwork.

Another addition was made recently to Whittington Church, when a stained-glass window was inserted in memory of the Misses Hibberd, of New Whittington. The idea which is being followed in the window decoration of the church is to give the chief representatives of British Christianity from St. Alban down to the end of the nineteenth century.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

In company with the Thoroton Society the Nottingham and Derby Architectural Society on Wednesday, August 11, made a visit to West Bridgford Church.

Mr. Harry Gill, in the course of an interesting paper on the ancient part of the building, said that the earliest written reference to the church was in the Taxation Roll of Pope Nicholas IV., but there was unmistakable architectural evidence that part of the present work was executed at least 100 years earlier. This evidence was to be found in the lower part of the rubble walling, which was of skerry on water stone, obtained most probably from the Mapperley hills. Windows indicated thirteenth-century work, or as early even as the reigns of Richard I. or John. During the reign of Edward III. (1327-77), village churches throughout the land were enlarged or rebuilt to meet the needs of the more elaborate ritual then in vogue. Bridgford Church was not pulled down, but was transformed by the addition of larger windows and the introduction of a rood screen and loft and other internal adornments. The stone altar, built into the eastern wall and destroyed at the Reformation, was replaced in Elizabeth's reign by an oak communion table. This was still in use in the side chapel, and the church also possessed a paten bearing the hall mark of 1564-5. The crudeness of the figures on the screen set up about 1380 suggested that the work was that of the village carpenter or mason. This was what made the church particularly interesting—that it was not built under monastic influence or by a trained band of itinerant craftsmen, but by village workmen under the direction of the squire.

Speaking of the effigy known as the "stone man," which has now found a resting place in the new morning chapel, Mr. Gill said that beyond the fact that at the close of the eighteenth century the figure was set upright to mark the boundary of the manor, near the junction of Melton Road and Loughborough Road, its history was unknown. There was strong presumptive evidence that it was intended to represent Sir Robert Luterell, lord of the manor early in the fourteenth century, whose widow was known to have presented an acolyte to the rectory in 1315. Externally, the charm of the old church was now somewhat overshadowed, but interest might still be aroused by the tracery of the eastern windows, the grotesque gargoyles, the carved stone in the south face of the tower, and a collection of eighteenth-century headstones in the graveyard, obtained from the Swithland slate quarries in Leicestershire.

After tea the company proceeded to St. Peter's Church, where Mr. Robert Evans, F.R.I.B.A., gave an interesting account not only of the church, but of what is being done in the way of restoration.

Mr. Evans, in sketching the history of the edifice, said it was disappointing to find no mention of the building in Domesday Book. The foundation deed of Lenton Priory was the first record we had, in 1100. The south arcade was the oldest portion, and was a fine example of the early English period, probably about 1180. There were no signs of Norman work, and in the various phases of restoration no Norman remains had been found. The original stone staircase to the old rood loft was one of the most interesting features. The north arcade was a much mutilated example of early English work—probably about the end of the fourteenth century. The chief damage was caused to it by the erection of galleries, which were removed in 1887.

Touching upon the work of restoration, for the completion of which funds are much needed, Mr. Evans remarked that five centuries' exposure to rain and sun had left its mark upon the tower and spire, but fortunately the men who selected the stone of which it was built did so wisely, and if succeeding generations were alive to their trust we might expect it to remain a landmark for many years to come. Originally the spire was crocketted, but ninety years ago the crockets were sawn off by a mason named Philip Wooton. The apex of the spire had for many years looked new, being of a lighter colour than the rest of the stonework.

This part of the spire had been a source of expense and anxiety for 200 years. In 1789 Robert Wooton, of Kegworth, rebuilt four yards of the spire and refixed the weather cock. He played a good many pranks at the top of his ladders, including beating a drum and drinking a bottle of ale in the sight of thousands of people on a market day. He died in the debtors' prison. In 1825 the

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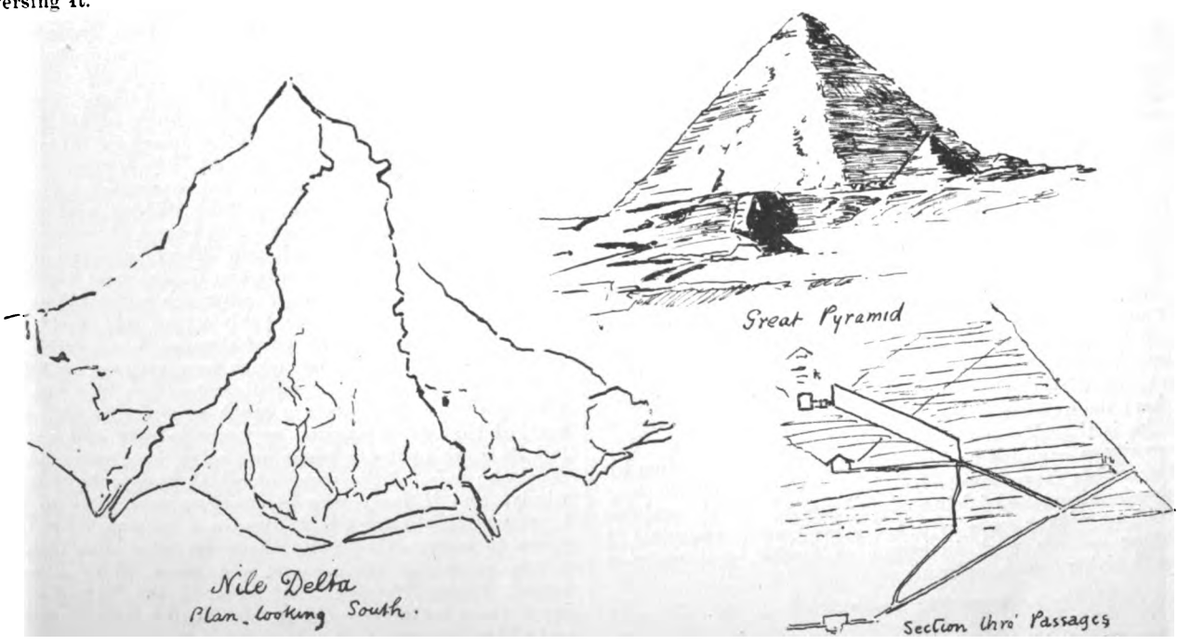
cock fell on to the nave roof, the stonework having perished. The present works of repair and renewal were long overdue. There was no mortar in the joints of the spire masonry within two inches of the face, and a great many of the joints were without any mortar, the rain driving through, with the result that the joints had become very wide through the perishing of the stone. The stonework at the apex, which was cracked and badly weathered, had now been entirely removed and rebuilt in Derbyshire stone of a colour and composition more closely resembling the original stone. The walls of the tower were about 3½ feet thick at the ringing-chamber level, and stones as large as 3 feet 8 inches long were used in their construction. The four pinnacles crowning the four angles of the tower evidently became badly decayed a long time ago and were restored, but these in turn became dangerous and the remains were taken down and placed in the churchyard. The pinnacles that had now been placed in position followed the lines of the old ones and were 7½ feet in height. In the tower there was a well-constructed groined ceiling, and in the centre was a carving on which were depicted the emblems of St. Peter—the cross keys and the head of a pastoral staff. The south face of the tower was more badly weathered than the others, and the buttress weatherings had in some cases almost entirely disappeared. All through the work of reparation it had been difficult to decide how much of the old work, where defective, should be left, in order that, on the one hand, the work when finished should be reasonably sound and lasting, and, on the other, that none of the money subscribed should be spent on any but absolutely necessary work, as so much remained to be done for which the funds were not yet available. About forty tons of material, including eighteen tons of mortar, had been used up to the present.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Land "Patterns" in Art.

Sir,—Some while ago I called attention to a rule in nature (noticed in landscape art) how clouds formed from the shape of the land—moulded therefrom—for example, over London, often an expanse with a broad "river" traversing it.



All else may be said to follow land pattern. How the ideas of men have been moulded from it may be seen in their buildings in a marked way in the pyramids, being transcripts or replica of Nile Delta. Compare the structure with the pattern shown by the outspread streams, expressing the stone courses, even the passages, "mounds," and all else.

That architecture generally has been influenced by dominant land form is also well shown by Italy, its pronounced shape induced towers, columns, arcades to be built, vases made in great style, candelabra. Round towers in Ireland, all are examples of a principle worth studying.—Yours, &c.,

S. James.

Willows Park, Victoria, B.C.: July 21, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Bedfordshire.

Apsley Guise.—Gleze Farm: cowhouses. Mr. W. B. Stonebridge, architect, 7 St. Paul's Square, Bedford. Messrs. C. Sinfield & Sons, contractors.

Dunstable.—Chew's School: cookery and joinery Centre.

Cheshire.

Macclesfield.—Unitarian Church, King Edward Street: Sunday school.

Cornwall.

Queens.—Infants' Council school.

Durham.

Coxhoe.—Motor house, for Mr. A. Brighouse.

Hetton-le-Hole.—Garage, for Messrs. Lamb & Sons.

Twelve houses, Houghton Road, for Mr. J. J. Storey.

House and shop, High Downs, for Mr. Downie.

Essex.

Halsted.—Isolation Hospital: extension.

Ilford.—Houses, for Mr. P. E. Brand.

Hampshire.

Bournemouth.—Cemetery: Hebrew chapel. Messrs. Lawson & Reynolds, architects, Granville Chambers, Yelverton Road.

Lancashire.

Ashton-under-Lyne.—Farm, Knott Lane, Bardsley: house, for the Stamford Trustees.

Blackburn.—No. 88 Duke's Row: conversion into two houses, for Mr. H. Burton.

Two houses, Preston Old Road, for Mr. H. Southworth.

House, Whalley Old Road: additions, for Mr. J. Eddleston.

Institute, Bottomgate, for the Furthergate Congregational Church.

Motor Garage, Belper Street, for the Daisyfield Co-operative Society, Ltd.

Storerooms, Penny Street, for Messrs. Coar Bros.

Blackpool.—Holy Cross Church, South Shore: rebuilding.

Liverpool.—St. Mark's Church, Edge Lane: new church and vicarage.

Wigan.—Villa, Monument Park, for Mr. J. Walkden.

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ENGLAND—*continued.*

LEICESTERSHIRE.

Market Harborough.—The "Angel" Hotel: proposed alterations, for Messrs. Phipps & Co.

MIDDLESEX.

Hendon.—St. Mellitus' Church, Colindale.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Corporation houses, the Walker Estate.

NOTTINGHAMSHIRE.

Kirkby-in-Ashfield.—Twelve houses, off Annesley Road, for the Annesley Woodhouse Co-operative Society.

Six houses, Clumber Street, for Messrs. Smith, Dove & Tate.

SOMERSET.

Bridgwater.—Depot, near the Docks, for the R.D.C.

Midsomer Norton.—Two houses, Lyndon Road, for Mr. H. Tovey.

Taunton.—House, Cyril Street West, for Mr. F. Handell.

No. 18 East Street: additions, for Messrs. Hedges, Ltd.

STAFFORDSHIRE.

Hednesford.—House, Uxbridge Street, for Mr. A. J. Holland.

Lichfield.—Garage, Tamworth Street: addition, for Mr. J. Lester.

Two houses, Walsall Road. Messrs. J. Thorneloe & Sons, builders, St. John Street.

Stoke-on-Trent.—Proposed secondary school for girls.

SURREY.

Shottermill.—Proposed Council school.

SUSSEX.

Horsham.—"King's Head" Hotel: alterations.

YORKSHIRE.

Dinnington.—R.C. Church.

Elland.—Providence Mills: addition. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

Leeds.—House and shop, East End Park. Mr. F. Mitchell, architect, 9 Upper Fountaine Street.

Morley.—Perseverance Mills: extensions. Mr. T. Buttery, architect, Queen Street (also at Leeds).

Worsborough Dale.—West Street Club: extensions. Mr. E. W. Dyson, architect, 10 Regent Street, Barnsley.

WALES.

Blackpill.—Red Cross Hospital: extension (£1,000).

Cardiff.—Welsh National School of Medicine, Newport Road.

SCOTLAND.

Ayr.—Heathfield Hospital: proposed enteric fever block.

Carnegie Library: proposed juvenile department.

Crieff.—Proposed Baptist Church, Commissioner Street.

Dumbarton.—Eighteen cottages and four blocks of tenements, for Dumbarton Building Society.

Dundee.—Garage, Union Terrace, for Mr. J. Douglas.

House, Cowgate: alterations, for Messrs. Esplin & Clark.

Store, Fairmuir Road, for Messrs. R. Baxter & Co.

Petrol store, Dundee Road, for Mr. J. C. Danby.

Villas, Dalkeith Road, for Messrs. J. Foggie & Son.

Coppersmith Works, East Dock Street, for Mr. A. McAra.

Edinburgh.—Sorting office, West Park Place.

Twelve villas, off Willowbrae Road, for Mr. J. Hogg.

Errol.—Parish Church: alterations and improvements.

Girvan.—Twenty-four houses, Bourtree Hall, for the South Ayrshire Collieries, Ltd., Glasgow.

Glasgow.—Drill Hall, corner of Govan and Rose Streets, for the School Board.

Knightswood Hospital, Anniesland: extensions, for the Corporation.

Store, Linthouse, for Messrs. A. Stephen & Sons, Ltd.

Indiarubber Works, Shuna Street: additions, for Messrs. G. McLellan & Co., Ltd.

Buildings and alterations, Cathcart, for Messrs. G. & J. Weir, Ltd.

Buildings, Old Edinburgh Road, Parkhead; also in Duke and East Wellington Streets, for Messrs. W. Beardmore & Co., Ltd.

Buildings, Caxton Street, Anniesland: additions and alterations, for Messrs. Barr & Stroud, Ltd.

Buildings, Renfrew and Hope Streets: reconstruction after fire, for Mr. F. L. Morrison.

Meldrum Station.—Mill of Cromlet: restoration of meal mill.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 28,417. Dec. 9, 1913.—Albert Rinne, Taunusstrasse, Butzbach, Germany. Manufacture of artificial stone slabs and the like.

28,432. Dec. 9, 1913.—Dated under International Convention Dec. 9, 1912. W. Graaff & Co., G.M.B.H., 17 Linkstr., Berlin, W. 9. Chemical fire extinguisher.

28,816. Dec. 13, 1913.—Dated under International Convention Dec. 17, 1912. Otto Vollmer, 2 Konigsteinstr., Dresden, Germany. Purifying and clarifying water.

29,356. Dec. 20, 1913.—August Wolfsholf, 7 Bismarkstr., Godesberg-on-the-Rhine. Construction of concrete piles.

29,415. Dec. 20, 1913.—Max Berndt, 53 Fabrikstr., Radeberg (Sachsen), Germany. Device for automatically closing open windows upon sudden rain.

29,421. Dec. 20, 1913.—Ernst Tuschhoff, Deutsch-Lissa (Schlesien), Germany. Method of preparing ceramic, argillaceous materials.

29,749. Dec. 24, 1913.—Anders Jordahl, 103A Potsdamerstr., Berlin. Means for securing and supporting brackets, plummer-blocks, or other fittings on ceilings, beams, walls, or the like constructed of reinforced concrete.

29,992. Dec. 30, 1913.—Dated under International Convention Dec. 31, 1912. Fenestra Fabrik fur Eisenhochbau, G.M.B.H., 143-47 Haasa Alle, Dusseldorf-Oberkassel, Germany. Metal windows.

10,812. May 1, 1914.—Dated under International Convention May 3, 1913. Glasfabriken und Raffinerien Josef Inwald, A.G., 103 Mariahilferstr., Vienna. Light reflectors or globes.

16,799. July 15, 1914.—A. W. Sharman, Kelvin Lodge, 1 Morella Road, Wandsworth Common, S.W. Apparatus for detecting the presence and finding the position of water or gas pipes and other concealed or buried conductors.

17,564. July 24, 1914.—B. F. Richardson, 30th and Locust Streets, Philadelphia, U.S.A. Construction of roadways and pavements and material to be used therein.

17,860. July 28, 1914.—Brevet Soc. Anon des Anciens Et. A. Heintz & Co., 29 rue du Gazometre Herstal, Belgium. Steam heating installations.

17,951. July 29, 1914.—A. F. Oates, 129 Royal Road, Kennington Park, S.E. Dust-cart covers.

18,037. July 30, 1914.—W. M. Bailey and James Cormack & Sons, Ltd., 30 Caxton Street, Westminster, S.W. Methods of and apparatus for heating water.

19,933. Sept. 18, 1914.—A. C. Evans, Lucerne House, Hampton Wick, Middlesex, and P. J. Mitchell, Caxton House, Wesfminster, S.W. Binding compounds for briquetting and the like.

20,005. Sept. 21, 1914.—W. J. Burridge, "Teignmouth," Hotham Street, St. Kilda, Victoria, N.S.W. Floor cramp.

20,039. Sept. 22, 1914.—S. H. Alabaster, 22 Stirling Road, Wood Green, N. Nail extractor.

2,524. Feb. 17, 1915.—Cockburns, Ltd., David Cockburn, and Donald MacNicoll, Cardonald, near Glasgow. Stop valves.

4,346. March 19, 1915.—Sam Gregg, Stainlands, Ferrybridge, Yorks. Covers for manholes or the like.

7,251. May 14, 1915.—James Thomson, 7 High Street, Gateshead-on-Tyne. Oven ranges.

21,352. Oct. 22, 1914.—James Bennett, 16 Deansgate Street, Manchester. Steel construction for strong rooms and the like.

22,277. Nov. 10, 1914.—John Holt, architect and surveyor, 22 Stradbroke Road, Southwold, Suffolk. Disinfecting apparatus for use in flushing cisterns.

23,708. Dec. 8, 1914.—W. D. Henderson, 491 Monadnock Building, San Francisco. Partition construction.

20,753. Oct. 9, 1914.—William Oates and F. P. Barber, Horley Green Works, Horley Green, Halifax. Dry closets.

Any of the above specifications may be obtained from J. D. Roots & Co.

THE site of the new City Hall in the Greenmarket, Dundee, is being cleared, and the foundations prepared. It is understood that some changes have been made in the plans of the front elevation of the Hall. The amended plans have been shown to a number of the city architects, and most of them believe that the external appearance of the building will be greatly improved.

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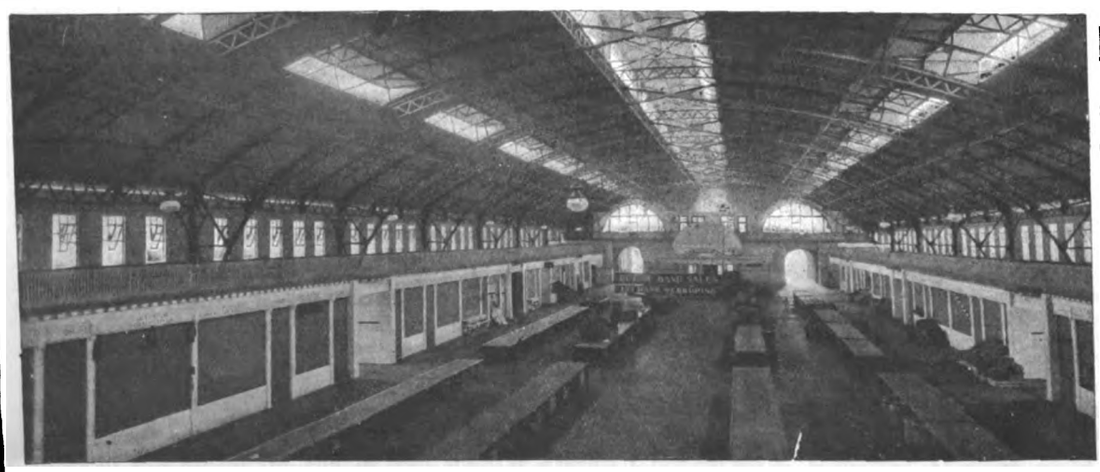
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BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 472. Jan. 7, 1914.—Channel Bends and the like for Inspection Chambers. John Barron, 52 Cow Cross Street, E.C.—This invention relates to improvements in channel bends, curves, and the like for use in intercepting and inspection chambers, as fixed in house drainage and general sewage construction, the object being to give free access for water-testing and providing a better discharge of solids, &c., lodging at this part to cause a stoppage. Projections formed inside the socket may be adopted in place of the shoulder. The outer edges of bend are scored at C, as shown on figs. 1, 2, 4, and 5, also left unglazed to enable a sound connection to be made ensuring a water-tight chamber The outer curved side is preferably made wider at the extreme end, and forms a right angle with the main channel, as shown at D, fig. 1. This not only provides more strength at this point to prevent workmen, when jumping from the step iron on to this part, damaging same, but it also allows the edges of bricks built on the main channel to form the benchings to finish flush with this part, instead of the angle left at this part having to be made good with Portland cement. The inner curved side of bend shown at G,

FIG. 1.

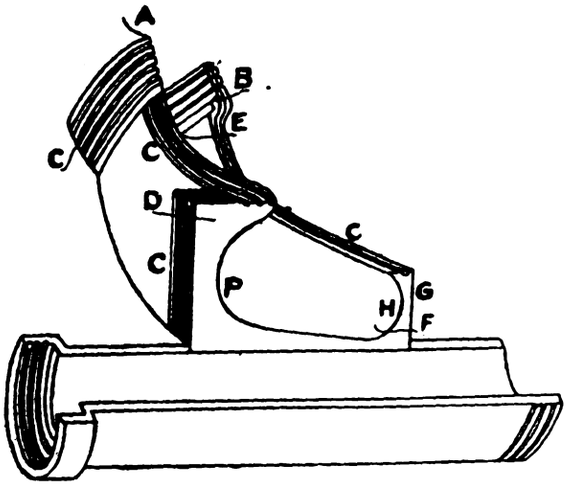


FIG 2.

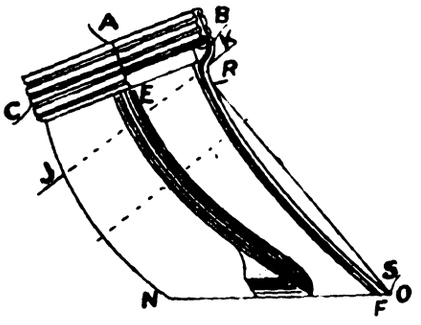


FIG 5

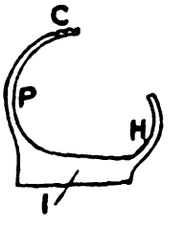


FIG 3

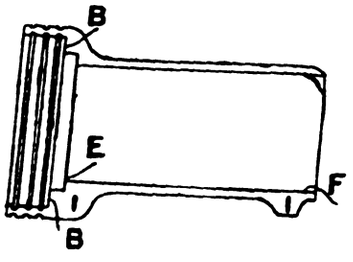
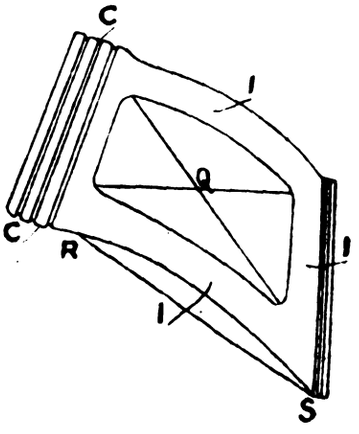


FIG 4



the sewage down the main channel and in a direct fall with the drain. Fig. 1 is a view showing application of a three-quarter section channel bend fixed on a half-section main channel as in practice. Fig. 2 is a plan of this bend. Fig. 3 is a longitudinal vertical section of figs. 1 and 2, showing the full length and inside of the bend. Fig. 4 is a plan of under part of bend. Fig. 5 is a cross-section through fig. 2 at J.K. The socket of bend shown on figs. 1 and 2 is cut away at A to make it flush with the high side of bend instead of projecting; this is to allow sufficient room for the expanding drain plug to be inserted at this part and tightened up with ease in the connecting drain for applying the water test. Ample room is also allowed at the outlet end of bend for inserting a drain plug. The socket is rebated, having a shoulder formed in same at B, as shown on figs. 1, 2, and 3. This forms a rest for the connecting drain, and ensures a flush connection between the inside of bend and the connecting drain, thereby preventing fig. 1, is made high enough to be equal to the thickness of a brick, so that the course of bricks built on main channel at this part to start the cement benchings from is flush—viz., neither above nor below this side of the bend. This not only expedites the work, but ensures a watertight joining of the cement benchings. Through the entire length of these bends a gradual fall is made, starting from the socket end at E and continuing to the extreme outlet end at F, as shown on figs. 1 and 3. To give increased area for the discharges, the inner curved side of the bend is formed in a straight line from the socket to the extreme end at outlet, as shown from R to S, figs. 2 and 4, and curved outwards, and from the lowest point of this curved part the bend is gradually sloped upwards to the opposite side, as shown from H to P on figs. 1 and 5. To show the curved shape of the inside of the bend at this part and the aforementioned increased area, a cross-section is made through fig. 2 at J, K, and shown on fig. 5.—Jan. 20, 1915.

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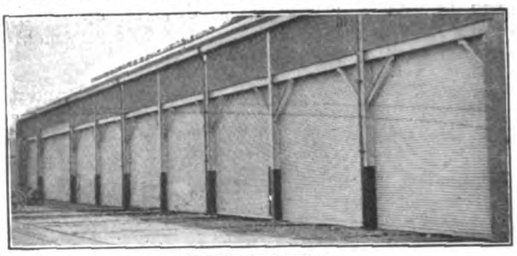
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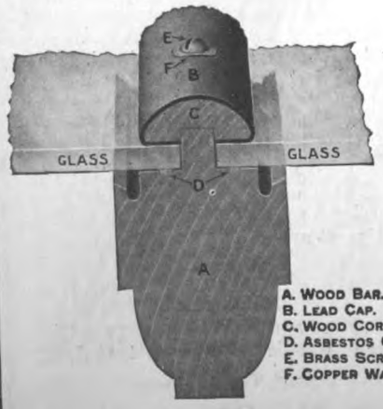
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FORTHCOMING EVENTS.

Friday, September 3.

Royal Sanitary Institute : Provincial sessional meeting opens in the Permanent Art Gallery, Brighton, at 10.30 A.M. (two days).

Tuesday, September 7.

British Association for the Advancement of Science : Annual meeting opens at Free Trade Hall, Manchester (four days).

MODERN ILLUMINANTS.

THE present century has been remarkable for a burst of activity in the improvement of artificial illumination, which has been almost too rapid in its rate of progress for its accomplishments to be sufficiently realised. In great measure this has been the result of the intense competition, nay struggle—for existence rather than supremacy—between gas and electricity. We might still be contented with the inefficiency of the batswing, the unsteadiness and heat of the Argand, the inconvenience of the albo-carbon, but for the introduction of electric glow-lamps for internal use and the arc-lamp for external about the year 1880. The famous exhibition held at the Crystal Palace in 1882 gave a great impetus to electric lighting, and gas lighting seemed threatened with relegation to the insignificance that it had itself imposed upon wax and tallow, colza and sperm.

This threat, however, caused those interested in gas lighting to make more vigorous efforts, and led to a revolution quite as remarkable in its way as the coming of the electric light. The riposte of the gas industry was effected through the incandescent mantle exhibited by Auer von Welsbach in 1883. Not immediately, however, did the new thrust by gas fetch home. The early mantles disintegrated rapidly and lost their illuminating value, and it was only the perseverance and brilliant research of Welsbach during the next few years that made the mantle an industrial success, culminating in his discovery of the value of ceria in 1890.

Since that time, and particularly during the present century, the battle between gas and electricity has been fast and furious. The strategic point at which each has aimed has been efficiency, more candle-power per cubic foot of gas, fewer watts per candle in electricity, more light for a shilling from the public point of view.

The cheapening of candle-power to the public has resulted in a desire for a higher standard of illumination rather than for a decreased expenditure on lighting. This desire for a higher standard has led to a further development in the means of illumination available for country houses and other situations not served by a central source of supply for gas or electric lighting. Lighting by acetylene, petroleum, spirit, paraffin, and petrol-air gas all owe their intensive development to the higher standard of illumination brought into requisition by the struggle between gas and electricity. The possibilities of the arc-lamp, as a source of high candle-power for external lighting, has been countered by the development of high-pressure gas in lamps which give several thousand candle-power light, and are stated to have an efficiency of about sixty candle-power per cubic foot of gas, a remarkable advance from the ability of the old flat-flame burners to evolve two or three candle-power per cubic foot of gas.

For a fuller account of the earlier history of lighting we may refer our readers to the book* recently published from the writing of Messrs. Gaster and Dow, and we may now turn our attention particularly to the more recently introduced improvements in modern illuminants.

Taking first the improvements in gas lighting, we note the introduction of the inverted mantle in place of the upright form of earlier days. The date of the Earl's Court Exhibition of Gas Appliances, 1904, may be taken as that of the practical introduction of the inverted mantle, though numerous defects at that time remained to be overcome. The superiority of the inverted form may be analysed as due to (1) improved distribution of light; (2) a greater variety range of candle-power; (3) higher luminous efficiency; (4) improved durability and strength of mantles.

With a vertical mantle the highest emission of light is horizontal in direction, the greatest amount above the horizontal line. With the inverted form, the highest intensity is according to the form of the mantle, usually between 45° and 60° below the horizontal, and a large proportion of the total emission is also below that line. Variety range of candle-power is shown by the capability of small inverted mantles to give only 25 candle-power, or less, as against the limitation of upright mantles to a minimum of 50 to 60 candle-power. On the other hand, high-power mantles can be grouped together in a lantern to provide a powerful light of 4,500 candle-power. Higher luminous efficiency is the result not only of better distribution of light, but of better incandescence by the pre-heating of the gas before combustion and by the more complete impact of flame upon the mantle. Improved durability of mantles is perhaps the most prominent gain of the inverted form, and results chiefly from the improved method of support, but also from the shorter and more compact form. Durability of mantles is a subject to which much attention has been recently given by manufacturers. Artificial silk is taking the place of cotton and ramie fibre, and soft mantles for safety in transport and better efficiency are superseding collodionised material whose burning off impaired, to some extent, the strength and efficiency of the mantle.

Not only the mantle, but the burner for inverted lighting has received, recently, considerable attention. The points to which this attention has been particularly directed are the use of metal wings, or deflectors, to conduct away the products of combustion from vitiation of the supply of gas and air to the burner, the application of waste heat from the burner to raise the temperature of the entering gas and air mixture, the introduction of anti-vibration devices to minimise injury to the mantle from shock, automatic gas and air regulation to regulate variations of local pressure and quality in the supply of gas.

Perhaps the most striking improvements in modern gas-lighting have been those in connection with high-pressure supply. These embrace, not only lamps utilising high pressure in the mains, but self-contained highly efficient lamps comprising local pressure-raising or intensifying devices, of which there are now obtainable a number which will burn on an ordinary low-pressure gas supply, and without complicated mechanism, yet credited with as high an efficiency as 30 to 40 candle-power per cubic foot. It is, however, in lamps for

* ***Modern Illuminants and Illuminating Engineering.*** **By Leon Gaster and J. S. Dow. With 204 illustrations. (London: Whittaker & Co. 12s. 6d. net.)**

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street-lighting that the development of high-pressure gas-lighting has made its most important advance. Lamps of from 2,000 to 3,000 candle-power are now a regular production, whilst some yielding as much as 4,500 candle-power are available.

In electric-lighting the outstanding improvement in the case of glow-lamps of moderate power has been the introduction of metallic in place of carbon filaments. The Nernst lamp, introduced about 1897, was the first practical attempt at such substitution. This was followed by the osmium, the iridium and zirconium, the tantalum lamps, graphitised filaments, and finally the tungsten, the most widely-known form of metallic-filament lamp of the present time. The object kept in view in the development of filaments has been the reduction of consumption of current with extension, or at least without reduction, of the life of the filament. There is no actual difficulty in obtaining a consumption of less than one watt per candle-power in the ordinary carbon filament, but the reduction of the life of the filament is so great that it is impracticable to do so. We have now available half-watt lamps, with a life of some 800 hours.

With arc-lamps, improvement has been attained by the use of inclined carbons and mineralised and treated carbons giving a flame-arc below the carbons, thus effecting a more advantageous light distribution as compared with the older arrangement of vertical carbons. Experiments have been made on the substitution of metals and metallic oxides for the electrodes of arc-lamps, but at present it would seem that the only commercially practicable form of this kind is to be found in the magnetite lamp widely used in the United States. In these a considerable extension of the usefulness of the negative electrode, and still greater of the positive, is obtained. Another direction in which progress has been made is in the design of small enclosed carbon arcs of improved efficiency.

A distinct class of electrical lamps of recent introduction is that in which luminescent vapours are employed in place of incandescent solid material, as in filament and arc-lamps. This class includes the mercury-vapour lamp, with its development the quartz-tube adjunct, the Moore vapour tube light, which uses luminescent nitrogen or carbon dioxide, and the neon tube. These luminescent-gas lamps have a particular value in the low intrinsic brilliancy of the light they emit, whilst their peculiar selection of variously coloured light-rays, in common with metallic vapour lamps, render them useful for specific purposes or spectacular display.

We have already remarked that the development of gas- and electric-lighting has its parallel in that of other forms available where a central source of supply is not present or usable. In this direction we have now at our disposal adaptations of incandescent material to liquid fuels—petroleum, petrol, and other hydro-carbons. There are also the two systems of petrol-air gas and acetylene lighting, in which great progress has been made in recent years.

For a full description of the improvements of which we have spoken we may refer our readers to the book on "Modern Illuminants and Illuminating Engineering," which we have already mentioned. This book brings the subject of illumination before the public in its most up-to-date aspect, and not only treats of illuminants, but of what we may call the new science or profession of illuminating. It deals in masterly fashion with the effect of modern illumination on the eye, the methods of measurement of light and illumination, the use and distribution of modern illuminants in order to obtain their best advantage without incurring the evils that may readily arise from an unskilful or improper use of the powerful and intense illuminants now produced. It epitomises within a reasonable compass, suitable for the edification of architects and their clients, the scientific researches into the many considerations that affect the use of modern illuminants.

NOTES AND COMMENTS.

In a very moderately expressed letter to the *Times*, Mr. Ernest Newton, A.R.A., President of the Royal Institute of British Architects, combats the recommendations of the Parliamentary War Savings Committee that "no one should build a house for himself at this time," and that "decorations and enlargements should be cut down as much as possible." Mr. Newton points out that "to stop all but absolutely necessary building would no doubt keep money in the pockets of those able perhaps to afford a modest and prudent expenditure in house building, decorating, and furnishing, but it would entirely deprive of all means of livelihood a very large number of people beyond military age and with no aptitude for munition making or other definite war work, even if it could be found for them. These men must inevitably become a burden on the community and, consequently, what is saved in one direction is lost in another." Our social organisation is so intimately interwoven that the ruin of those connected with the building trade must re-act upon many other industries and activities, for the building trade is the largest of our national activities, and injury to its members reflects therefore upon a very large number of other persons. Again, the building trade is engaged in all its operations in adding to the wealth of the country; it is a productive trade, and what it produces is useful for the benefit of the community. The restriction of house building means overcrowding, insanitary living, diminished working ability of the people, a lower birth-rate, and a higher death-rate. It reduces the numbers of the population and the productiveness of those who remain.

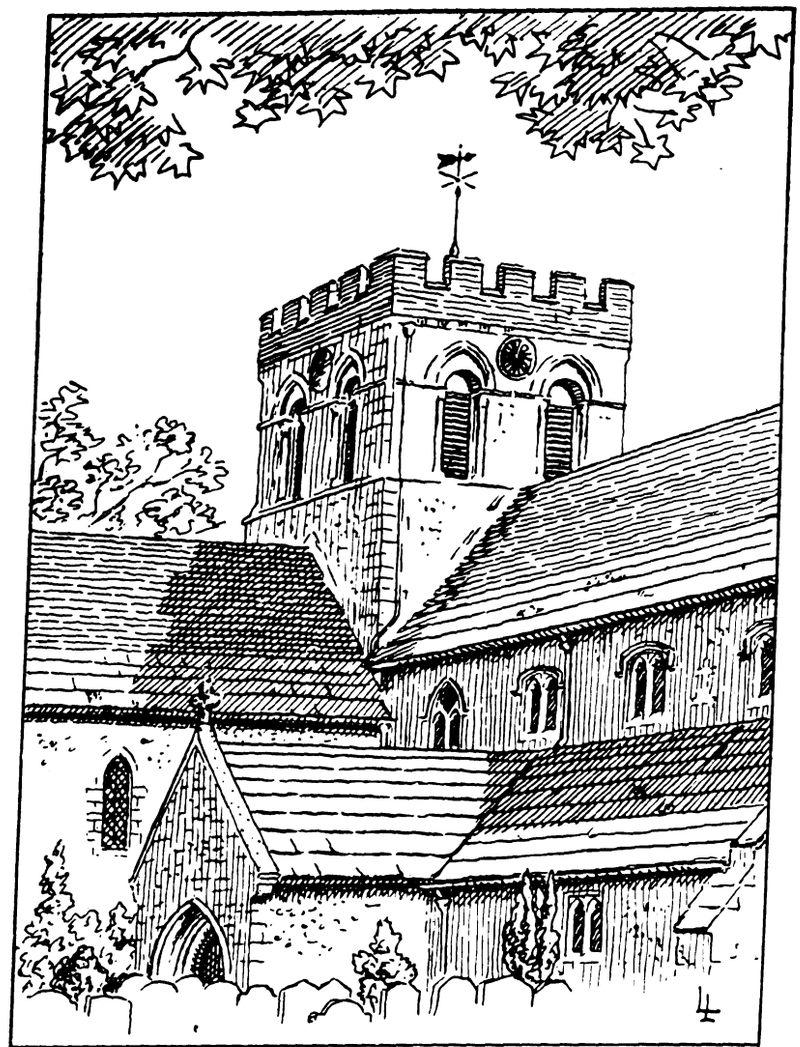
The New York correspondent of the *Yorkshire Post* tells us that negotiations are now going forward for the purchase of 20,000 movable dwelling-houses, churches, schools, and shops, and it is expected that manufacturing firms here will get the order in time to begin shipment during the coming autumn. It is stated that England, France, and Belgium are acting together." We trust this is a canard. Whilst the topic of the day is the fall in the American exchange, it is scarcely likely that anyone connected with the government of England and France should contemplate intensifying the position by placing orders for millions of dollars' worth of goods which could be supplied on this side of the Atlantic. If speculators are at work we hope they will burn their fingers.

Spain is, to a large extent, a terra incognita as regards its mineral resources, and the latest report is that large deposits of alkali or potash salts have been found in the province of Barcelona and other portions of Catalonia, and it is expected, from a survey of geological indications, that more deposits will be located. If these deposits can be worked remuneratively one important source of Germany's wealth in chemical industry will be seriously threatened.

The meeting at Manchester of the British Association for the Advancement of Science will commence with a gathering in the Free Trade Hall on the evening of Tuesday, September 7, when the retiring President (Professor W. M. Bateson, F.R.S.) will vacate the chair and give place to the President-elect, Professor Arthur Schuster, F.R.S., who will deliver his presidential address. The various sectional meetings will open on the following morning and continue each day, ending on Friday, September 10. The Section A (Mathematical and Physical Science) will assemble, under the presidency of Sir F. W. Dyson, F.R.S., in the Physical Laboratories of the University, Coupland Street; Section B (Chemistry), of which Professor W. A. Bone, F.R.S., is to be president, will meet in the Chemistry Theatre, Old University Buildings; Section C (Geology), the president of which is Professor Grenville A. J. Cole,

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"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB



Broadwater Church, Sussex, from the NW.

From Drawing by Mr. Lindley Latham.]

The church of Broadwater (a village which now merely forms a suburb of Worthing, but was once the more important place of the two) is well known to students of Sussex antiquities. The oldest parts are the Transition Norman central tower and vaulted chancel; the transepts are Early English additions, and the nave, rebuilt in the fourteenth century, was again largely reconstructed in the fifteenth. This diversity of style is accompanied by diversity of material: the walling is partly of stone and partly of flintwork, and the roofs covered partly with Horsham stone slabs and partly with tiles. Yet the general effect is harmonious and satisfying; and neither the mixture of round and pointed arches in the belfry windows, nor the later battlements of dark-coloured stone, seem to detract from the simple dignity of the tower. Some idea of its singularly reposeful expression and its grouping with the roofs below may perhaps be gained from the drawing, which also shows the following features: (1) The bold porch, placed rather far eastward, and (probably owing to the position of the village street) on the north side of the nave. (2) The one Decorated bay of the clerestory. (3) A Calvary cross in "flush-work" between the first and second clerestory windows from the west.

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will meet in the Anatomy Theatre of the Medical School in Coupland Street; Section D (Zoology) will meet in the National History Theatre, Beyer Buildings, under the presidency of Professor E. A. Minchin, F.R.S.; Section E (Geography) is allotted to the University Gymnasium, Burlington Street, and is to be under the presidency of Major H. G. Lyons, F.R.S.; Section F (Economic Science and Statistics), to be presided over by Dr. W. R. Scott, will meet in the Chamber of Commerce, Mosley Street; Section G (Engineering), under the presidency of Dr. H. S. Hele-Shaw, F.R.S., will assemble in the Engineering Laboratories, Coupland Street; Section H (Anthropology), over which Dr. C. G. Seligman is to preside, will meet in the General Theatre of the Medical School, Coupland Street; Section I (Physiology), of which the president is Professor W. M. Bayliss, F.R.S., meets in the Physiology Theatre of the Medical School, Coupland Street; Section K (Botany), which has for president Professor W. H. Lang, F.R.S., will meet in the History Theatre, Old University Buildings; and Section L (Educational Science), to be presided over by Mrs. Henry Sidgwick, will meet in the High School for Girls, Dover Street.

In a paper on 'Sixty Years of Sanitary Work and its Effect on the Incidence of Tuberculosis," by Mr. J. C. Dawes, the chief sanitary inspector of Keighley, the author pointed out that during the period 1851 to 1855 the tuberculosis curve showed a most marked declivity, the mortality from tuberculosis being reduced by 8 per cent., and during that period England and Wales were roused to sanitary activity by the passing of the first great sanitary Acts, the Public Health Act of 1848, which

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inspired a public sanitary conscience which had continued through the progressive stages of development to make possible the great schemes of to-day, and would doubtless continue to make for the evolution of a perfectly sanitary State. Sanitation, he said, had been proved to be the most potent factor in reducing the incidence of tuberculosis. A quarter of a million could be accepted as a reasonable figure to cover the number of persons suffering from the disease at the present moment. Those greatly reduced figures, still falling, had to be faced and fought by the further application of sanitary science and the scientific treatment of diagnosed cases; but sanitation had not yet been fully extended as a factor to prevent the disease, and, if the prevention were made the central and direct aim of all sanitary operations, the mortality therefrom would be reduced, the national physique improved, and the economic position of the country greatly enhanced. The ideal of the sanitarian was the evolution of a great sanitary State, and the fullest development of the great physical force known as the power of resistance to disease.

At the conference on New Ideals in Education, held at Stratford-on-Avon, Mr. Tunally, late H.M. Inspector of Drawing, spoke on "Recent Developments in the Teaching of Drawing," and argued that all systems are wrong because they tend to become rigid. Give a child, he said, a range of colour in a suitable form, and a suitable paper, and let him express his own ideas. It does not matter what the technique is. The moment we set out to teach a child technique we fail. Let the child put down what he thinks he sees, and if the result is unsatisfactory make it your business not to improve the technique, but to improve the child's power of seeing correctly. In this way the pupil was trained to exercise his own mind, and drawing was made a powerful aid to thought. The method of teaching he had described would bring bright and happy thoughts to children, and help to establish peace and contentment of mind. Children were allowed to bring, select, and arrange their own objects for the training of their visual perceptions, and the ideas that were gradually formed were carried out by girls in needlework and embroidery, and by boys in woodwork and metalwork.

WAR ITEMS.

In the issue of *The Architect* for July 30 we reported *literatim* a statement by Mr. Tennant in the House of Commons concerning the employment of qualified architects in the erection of wooden huts for military purposes. We have now received the following letter from the Hon. Secretary, Architects' War Committee:—

Sir,—My attention has been called to a reply given by Mr. Tennant, Under-Secretary of State for War, to a question concerning the use which the War Office has made of architects' services.

Mr. Tennant is reported to have said that "the offer of service by the Royal Institute of British Architects to assist in any work carried out by the War Department was not received until May 1915, when the greater part of the work of erecting wooden huts for the troops had been finished, hence comparatively little advantage could be gained by the War Department availing itself of the offer."

As this statement is incorrect and, I find, has already given rise to considerable misunderstanding, I beg to make the following statement of the facts:—

A complete offer of the services of all members of the Royal Institute of British Architects and of other members of the architectural profession was made to his Majesty's Government on September 11, 1914, in a letter from the Architects' War Committee, addressed to the Right Hon. J. A. Pease, P.C., M.P., the Minister authorised to deal with such offers. It was acknowledged by Mr. Pease on September 14, 1914, and the War Committee was informed that the letter was being forwarded to other Government Departments, and that if an opportunity of utilising the help offered arose, a further communication would be sent.

On September 23 a letter was received from the War Office—F.W.4—dated September 23, 1914, in which it is stated that the writer is commanded by the Army Council to acknowledge the receipt of the letter of the 11th containing the offer of service of members of the Royal Institute of British Architects, and other gentlemen of the architectural profession, and stating that the Army Council much appreciates the patriotism which has prompted the offer, which has been noted for future consideration.

From these letters it is manifest that the offer was in the hands of the Department which Mr. Tennant represents in September 1914, at a time when the work of the huts had hardly been commenced, and not in May 1915 when the greater part of the work had been completed, as stated by Mr. Tennant.—Yours, &c.,

Hanover Square, London, W.: August 20.

C. Stanley Peach, Honorary Secretary, Architects' War Committee.

ILLUSTRATIONS.

COMPETITION DESIGN FOR STEPNEY MUNICIPAL BUILDINGS.

In this design, by Messrs. W. G. Wilson, F.R.I.B.A., and J. W. Gilmour Wilson, the authors have in part worked on similar lines to those of the winning design, both in general disposition and in the provision of the height of two floors for a large room.

THE ARTISTS' WAR RELIEF EXHIBITION.

Our illustrations should be of interest as examples of the work now on exhibition at the Artists' War Relief Exhibition, as well as specimens of the recreation-work of four well-known artists; but to our younger readers we would especially commend them as examples of composition in default of our ability to reproduce the colour.

OXFORD COLLEGE SERIES.—NEW COLLEGE. Nos. 154 and 155.

We this week complete the series of illustrations of New College, Oxford, which commenced in *The Architect* on August 13.

Mr. F. Bligh Bond, F.R.I.B.A., recently reported on the condition of Monksilver Church, Somerset, which showed signs of settlement and subsidence. Immediate attention is necessary, and a sum of about £300 will have to be expended.

Mr. James G. Laing, R.S.W., president of the Glasgow Art Gallery, well-known as a Scottish water-colour painter of Continental architectural subjects, died on Sunday last at his Glasgow residence. He was born and educated in Aberdeen, and was apprenticed as a pupil to Mr. James Soutar, A.R.I.B.A., of that city. Later he went into the office of Messrs. Campbell Douglas & Sillars, architects, of Glasgow, before definitely giving up the profession after seven years. As a painter he met with considerable success: examples of his work are to be found in many collections, including the municipal galleries of Glasgow, Manchester, and Leeds.

The "Journal of the American Institute of Architects" for July announces the forthcoming publication of a monograph on the Octagon House, the national headquarters in Washington. The associations that cluster about this building are announced as follows: "As a fragment of one of the most romantic periods of this country's developments, its atmosphere is quietly reminiscent of the life of a gentleman of the eighteenth century. One cannot enter it without unconsciously peopling its rooms with the gracious men and women of that day—there may come even a lingering regret over the changes which seem to have made that life no more than a memory—and there will surely come the devout wish that the whole may be jealously guarded and preserved as an inspiration to future generations."

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LAON.

By J. Tavenor Perry.

Early in the war, when the Germans were closing in on Laon, and fears were expressed as to the fate of the ancient city under the control of their ruthless armies, some sort of assurance was given to Europe by their journals that every care would be taken of the Cathedral, for the reason that it was the prototype, or copy—they were a little vague on this point—of their own more venerated and more beautiful Dom of Bamberg. How far their promises have been observed we do not yet know, for, although Laon is a city set upon a hill that cannot be hid, the Germans have so effectually screened it from our vision that we know nothing of its present condition, and can only hope that when the revengeful enemy is compelled to retire he will not exhibit his childish spite in blowing up its towers.

The position of Laon is striking and unique. Perched on the top of an almost precipitous hill, some 300 feet high, rising on all sides from a vast cultivated plain of illimitable extent, it is connected at one point with a range of low hills, from which it projects like a promontory. The plateau on which the city is built is shaped like a capital L, and the fortifications follow its outline immediately at the top of the escarpment except for a small portion of the lower arm and serif of the letter, the base of which faces towards the west. The area of the plateau falls slightly from the east, and on the highest point is placed the Citadel, with the Cathedral and the Bishop's Palace closely adjoining it.

The place is reached from the plain below by zigzagging roads winding in and out along the faces of the escarpments; and it was up these roads that all the stone used in the building of the Cathedral was dragged by teams of patient oxen, whose memories have been preserved by the grateful citizens in their colossal effigies still looking out from the turrets of the western towers. The road from the railway station up the northern side of the hill, which passes close under the palace, is lined by carefully cut lime trees, flat as a wall, shown in our sketch (fig. 3).

The remarkable position of Laon and its capabilities for defence made it, from the earliest times, a place of great military importance, and it has witnessed many a fight and endured many a siege from the opening periods of the French monarchy to the last great Franco-German war. Whether it was known to the Romans, and whether they took any advantage of its position, is uncertain; but through the Middle Ages it was always held to occupy the site of the ancient Bibrax, or Bibracte, since assigned by Freeman to Mont-Beuvray, near Autun, the capture of which is recorded by Cæsar. This appears to be partly due to some confusion as to the origin of the name, Bibracte being considered to be the Latinised form of the Celtic name Lao-omdun, meaning a mountain of two branches, which equally well describes the two places.

However this may be, there seems but little doubt that Laon was a Gallo-Roman city as early as 497, becoming the head of a diocese carved out of the earlier one of Rheims; and it is early referred to in ecclesiastical records, St. Remi calling it Lugdunum, and Gregory of Tours Lugdunum Clavatum. In Merovingian times it was a royal city, the favourite residence of Queen Brunihild, and in 948 the meeting place of a Council of Bishops; while in the century following the deposition of Charles the Fat the Crown of Western France passed to and fro between Paris and Laon.

Of the internal tumults and troubles of the city we will speak presently, and give the rest of its external history now. During the second period of the Anglo-French wars, in 1419, Laon was besieged and captured by the English, but returned to the French Crown, then worn by our Henry VI., in 1429. It was the scene of one of Napoleon's last battles, before his retirement to Elba, when he was defeated by Blücher in March 1814; and, finally, it was captured by the Germans again in September 1870 in the Franco-German war.

Laon was one of the most turbulent of French cities in the Middle Ages, and, together with Amiens, Noyon, and St. Quintin, among the earliest to obtain special municipal privileges allowing each city to use its own particular seal, a bell and belfry for the exclusive use of the citizens, and power to make its own laws for internal government, and to tax themselves in consideration of the tribute they paid direct to the King as their only overlord. Each of these cities was also allowed to take arms for their own defence, and it thus became externally a fortress and internally a fraternity. When these cities first gained this freedom is uncertain, and although it is common to attribute their enfranchisement to Louis the Fat, it would seem that he merely confirmed the rights which they claimed and had long before exercised. It is certain, however, that Laon, which, during the twelfth century, was rich and turbulent, extorted from Philip Augustus, in 1191, a full recognition of its rights and privileges in return for an annual rent of 200 pounds Paris. These privileges were preserved more or less until the Revolution swept them all away; and with the return of Royalty to France the bishopric was finally suppressed, and, though the privileges were not restored, the citizens were permitted to display the lilies of France on their shield of arms.

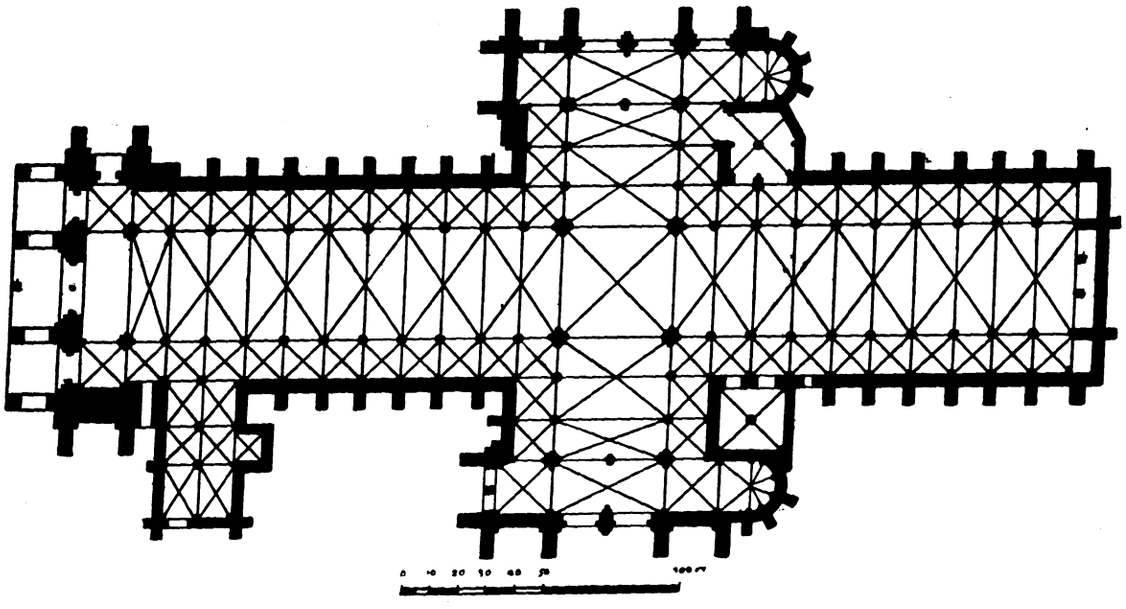


Fig. 1.—SKETCH PLAN OF THE CATHEDRAL.

The history of the Cathedral must precede any architectural description of it, as no study of the building itself without this help will account for its most remarkable peculiarities. Among ecclesiastical edifices it holds a perfectly unique position, as being from the first constructed for the production of "stage plays" and the celebration of Divine worship; and it is an evidence not only of the wealth of the citizens, but of their power and independence, which enabled them to erect so magnificent a building, and yet to modify the traditions of ecclesiastical architecture to such a degree as to produce so extraordinary a Cathedral.

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Documentary evidence quoted by Inkersley shows that an early Cathedral was burnt down and destroyed during one of the many troubles of the Commune in 1112, and that another one erected in its place was consecrated the next year. But that clearly is not the building now standing, for we find in another serious riot in 1142 that the church was again damaged or destroyed; and to some date subsequent to this the existing edifice must be ascribed. Possibly the ancient font with its bowl of black marble and rude carvings may be a relic of one of these earlier buildings.



Fig. 2.—CATHEDRAL TOWERS FROM THE SOUTH-WEST.

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The plan of the Cathedral (fig. 1) presents a peculiar aspect utterly unlike the contemporary buildings which were rising in France during the latter half of the twelfth century. It consists of a vast nave, 400 feet long and 80 feet high, cut nearly in the centre by the transepts and terminating in a square east end. With this departure from the usual apsidal type, there are no eastern chapels to the choir; but, curiously enough, there are two small apsidal chapels eastward of the transepts, repeated again on the stage above. The whole building thus arranged formed a vast hall with the floor space unbroken by screens and chapels, and with the tribunes or galleries of the first stage enlarged to a size unknown elsewhere in France, all eminently suited to be the meeting-place of great assemblies of people; and for three centuries, at certain periods, it witnessed many such, accompanied by the most remarkable scenes.

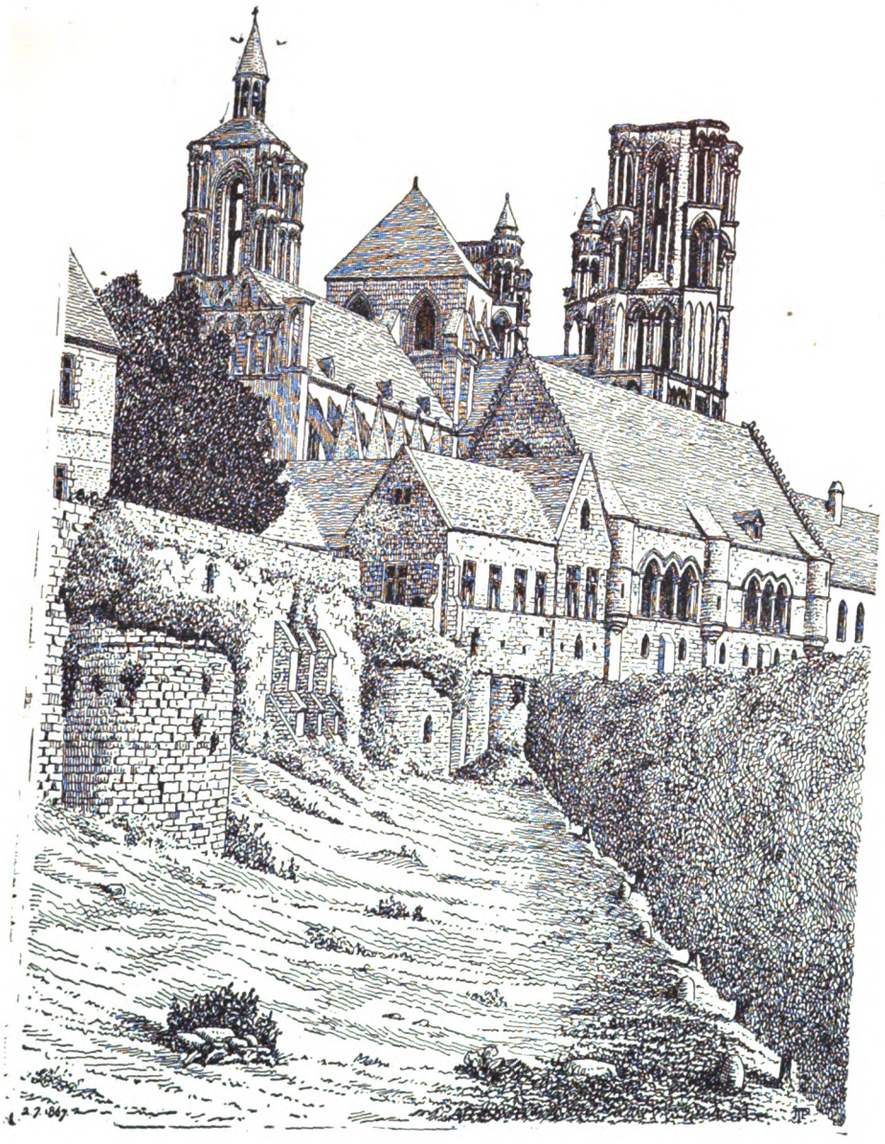


FIG. 3.—CATHEDRAL AND BISHOP'S PALACE.

The following may be taken as examples of what very often went on, which to us may seem as lacking in good taste as wanting in religious feeling. On the Feast of the Holy Innocents the choristers, dressed in copes, occupied the canons' stalls and chanted a travesty of the office with much buffoonery; and were entertained by the Chapter afterwards. On the Vigil of the Epiphany the canons and choristers elected a Patriarch of Fools, and if any abstained from the election he had to pay a forfeit. They offered to the Patriarch the bread and wine on the part of the Chapter, and he in return gave them a large sum of money for a banquet. Those taking part in the fun arrayed themselves in grotesque vestments, and for two successive days the church was given up to the people—something like an early rehearsal of the Feast of Reason in the church of Saint-Eustache during the great Revolution. These farces were abolished in 1560, but the remembrance was preserved in the custom, which lasted into the eighteenth century, of distributing at the Mass of the Epiphany crowns of green leaves to the choir.

Mystery plays were enacted in the Cathedral until the fifteenth century, and the canons did not disdain to appear as actors. In 1462, at the Feast of Pentecost, was played the Passion of Our Lord, and this spread over five days. On August 20, 1476, was produced a piece entitled "The Play of the Life of our lord St. Denys," and to allow more time for the performance Mass was said at eight and vespers at noon.

Any detailed account of the architectural features of Laon Cathedral is unnecessary, as the building is so well known to all students, if not from an actual visit to it, from the numerous published photographs and drawings; but it may be well to point out some of those leading characteristics which so distinguish it from other buildings of the same date and class in France. The sketch plan already referred to will show the relative position of the various parts. To the square east end and absence of radiating chapels we have already alluded; and another peculiarity is the extreme plainness of the interior, the simplicity of its carving, and the reduction of the mouldings throughout to little more than a bold roll on all projecting angles. On the exterior the most remarkable feature, to which everyone's attention is immediately called, is the towers, of which five out of the seven originally intended still stand their full height save for their crowning spires. These towers are placed in pairs to the west front and the north and south façades of the transepts, with a single one at the crossing; and this would appear to have been the early ideal arrangement of a French cathedral, as commenced

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also, but not completed, at Rheims. The four towers of Bamberg Cathedral are, on the contrary, placed in pairs flanking the eastern and western apses; and except for a perhaps fortuitous likeness between the upper parts of one pair and those of Laon, afford no ground for comparison. Our sketches (figs. 2 and 3) show the towers of Laon from the east and west, and their almost unique arrangement of angle turrets.

An unusual arrangement in the general design, already mentioned, is to be seen in the triforium, which is much reduced in importance and raised to a higher position than usual, and in place of it is inserted a great tribune which passes all round the church and across the transepts, clearly

years by Viollet-le-Duc in a very fierce manner, when the sculpture of its three deeply recessed west portals was renewed. The famous Cross of the High Altar has, fortunately as it happens, not been left in the Cathedral to add to the German spoils, but has long since been housed in the Louvre, and is figured in De Caumont; but there are some eighty more or less valuable reliquaries which Dr. Bode may now be arranging in his museums in Berlin, where they will be safe until the day of their return.

Considerable remains of the great episcopal palace of Laon stand to the north-east of the Cathedral, and their aspect from the outside of the ramparts is shown in our sketch (fig. 3); and it is evident from these that, although

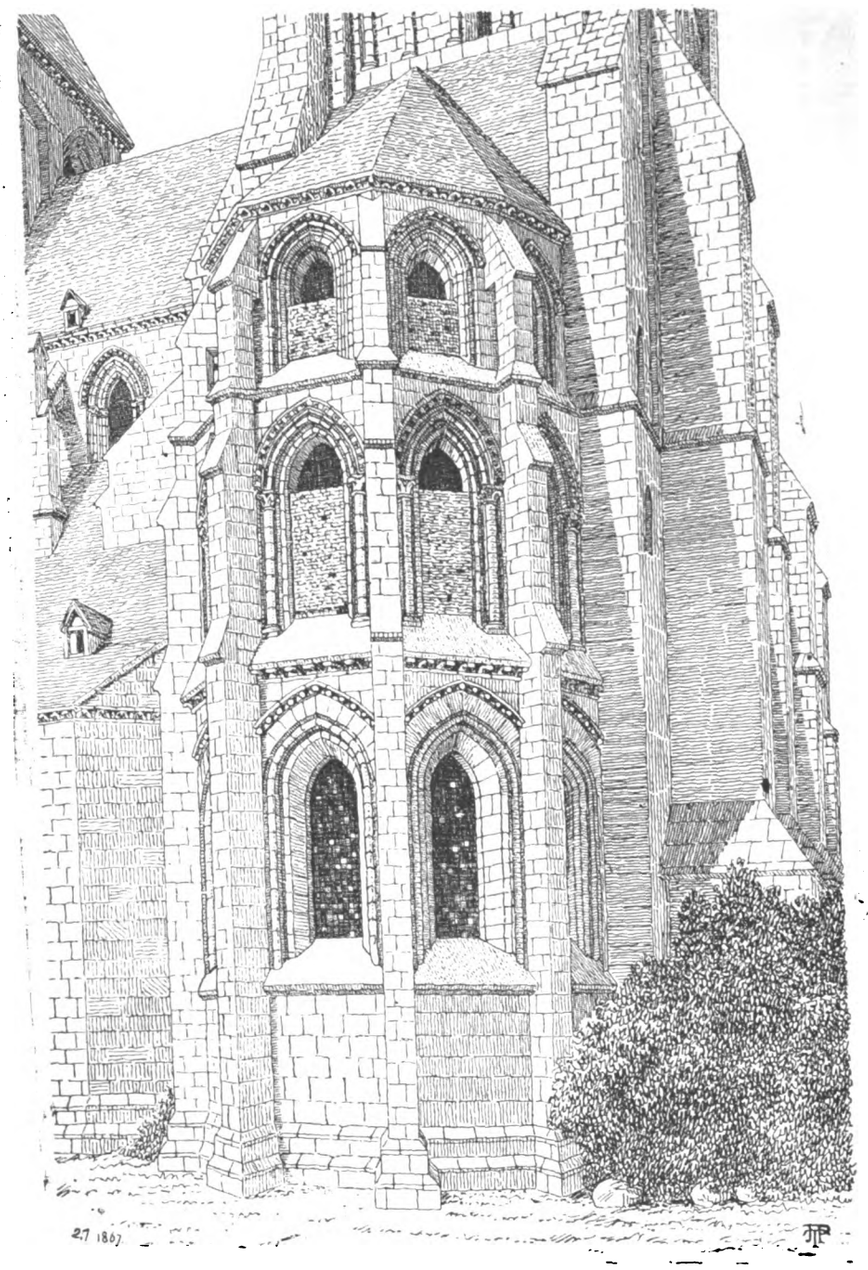


Fig. 4.—CHAPEL OF THE NORTH TRANSEPT.

designed for the use of sightseers, and well provided with staircases of approach. The great rose windows inserted in all the gables are good examples of the gradual growth of this feature in French architecture from early plate tracery, and we give several examples taken from the Cathedral and other churches in the town (fig. 8). The chapter-house was placed in the unusual position of south to the west front, and opened on to a small cloister to the east of it, of which we give a sketch (fig. 7); and it is to the south-east angle of the exterior wall of this that the celebrated angel-held sundial is fixed.

The building was restored in 1867 and the following

the Bishop of Laon was one of the twelve ecclesiastical peers of France, he was adequately lodged. The principal building is the great Hall, 108 feet long, raised on an earlier basement by Bishop Garnier in 1245, and it overlooks a courtyard on the one side and the wide champagne on the other. On the country side it has three large turrets carried on buttresses, and they were crenellated so as to form a second line of defence with the town wall, which stood a few feet in advance of them. Further west from the Hall stretched other buildings of the fifteenth century, now much modernised; while towards the courtyard was a covered ambulatory which served to protect his Lordship, when taking the sun

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and air, from the cold winds which blew about the lofty hill-top.

A little to the south of the Cathedral stands a diminutive chapel, which seems to have belonged to a Preceptory of the Knights Templars; and it is extremely interesting from the fact that it coincides in plan and dimensions with the so-called Templars' church on the Western Heights of Dover, traditionally known as the building in which King John laid the crown of England at the feet of Pandulf, the Pope's legate. The very remarkable corbel table and much of its carving are figured in Viollet-le-Duc and De Caumont (figs. 5 and 6).

Of the important abbey of St. John overlooking the Cuve de Saint-Vincent, as the great hollow in the L is called, which now forms the Prefecture, comparatively little of interest remains. Of its conventual buildings most were reconstructed during the Renaissance period, and the other remains have suffered in modern alterations. Near the Abbey stands the Porte d'Arlon, one of the two ancient gateways of the city, still preserved in a workable condition, of which we give a view in fig. 11.

By far the most important ecclesiastical edifice in Laon, after the Cathedral, is the great abbey church of St. Martin, situated at the west end of the town. It is a simple building, Transitional in style, consisting of a nave and aisles, transepts and choir, vaulted throughout, the nave being vaulted in bays the same width as those of the aisles. Externally the most important features are the two towers, still unfinished, standing at the intersections of the nave aisles with the transepts, and with the upper parts, so far as they are carried, of a later date than those below. The gables of the south and west front are remarkable. That of the west front, represented in Viollet-le-Duc, has in the upper part between two crocketted turrets in a large cusped circle a figure of St. Martin sharing his cloak with a beggar. It should be remembered that St. Martin *shared* his cloak, he did not *shear* it, as stupidly represented on the lamp-posts of St. Martin-in-the-Fields, London. The saint, being also a sensible man, on a journey at the time and in armour, with his helmet hanging at the saddle, cut off the hood or cappa from the cloak, keeping the former to cover his own bare head and giving the other to cover the beggar's nakedness; and it was this cappa, preserved as a relic by the kings of France, which became the origin of the chapels and chaplains of early mediæval times, and much else, as Du Cange tells us. The gable of the south transept (fig. 12) is chiefly remarkable for the boldness of its mouldings and the manner in which they are curved over the rose-window, as in the triforium of Saint-Etienne, Beauvais. Another strange feature to notice is the pair of small round-headed windows over pointed ones, but the whole composition is as happy as it is bold and unusual.

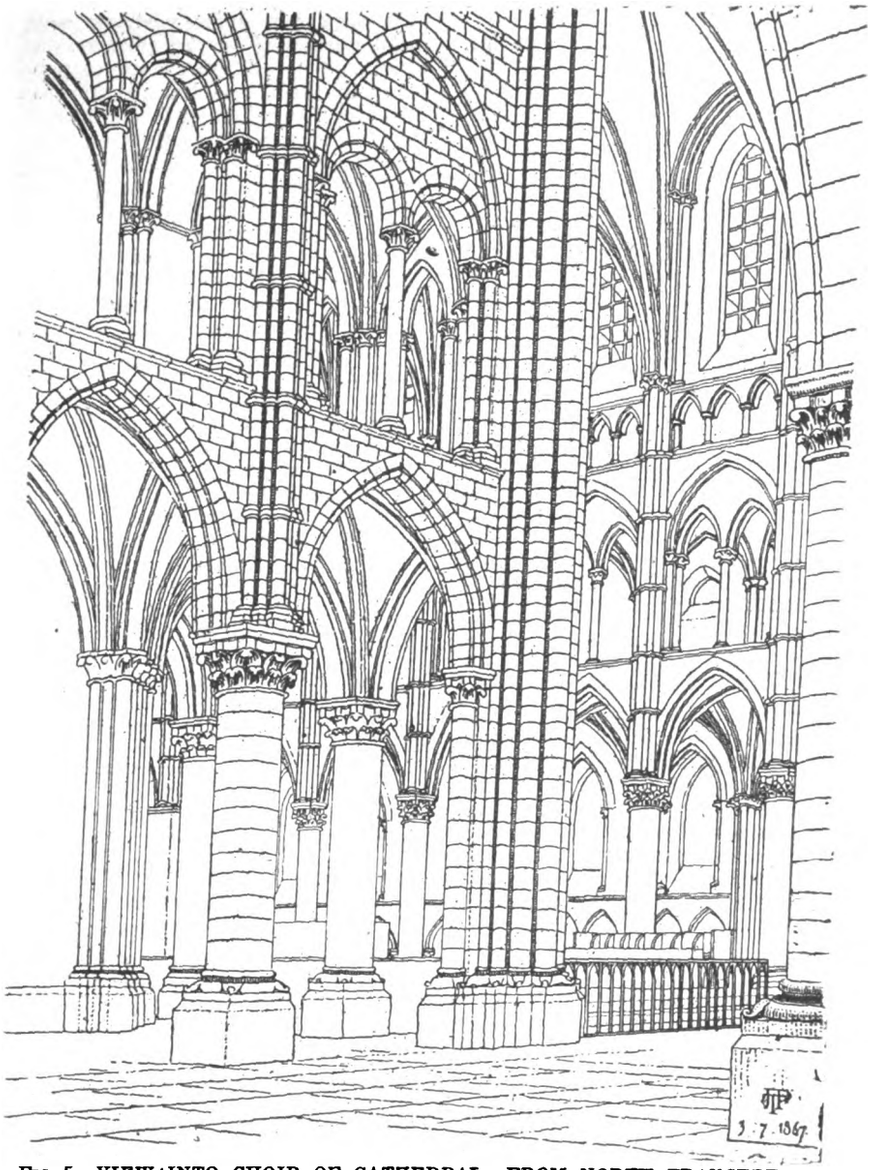


FIG. 5.—VIEW INTO CHOIR OF CATHEDRAL.—FROM NORTH TRANSEPT.

On the plain towards the east below the ramparts is a small village known as Vaux-sous-Laon, which may be regarded as a suburb, and, being close to the station, cannot be overlooked. Its ancient church of Saint-Jean Baptiste has a small nave dating from the eleventh century, and a choir of the middle of the twelfth, and much loftier and broader than the former. The east end has a fine rose window, and at the west was an arcaded narthex built across the front.

Such was the "hill city" of Laon with its diadem of towers; and we can only hope that for once the Germans have kept their promise and left it "a joy of the whole earth."

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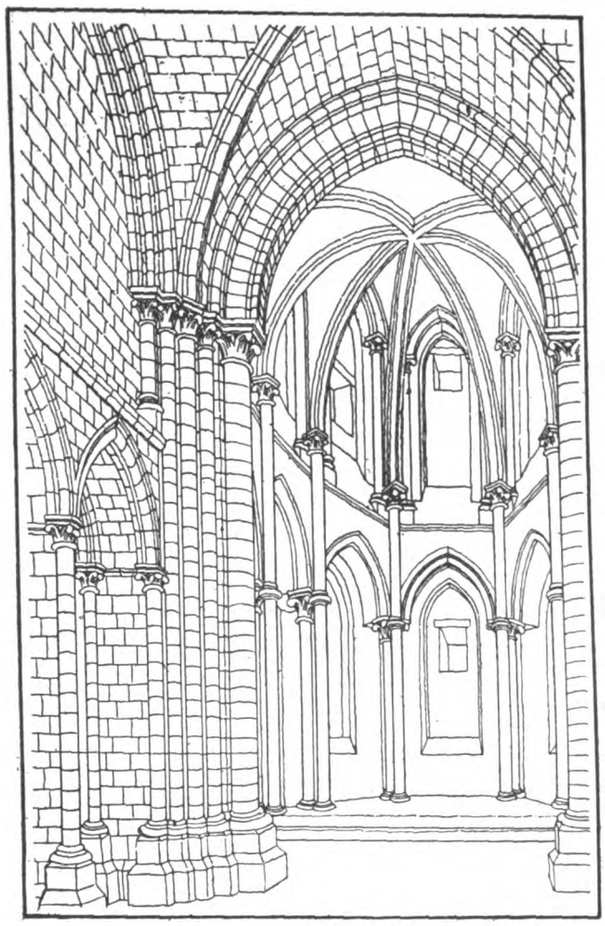


Fig. 6.—LAON.—CHAPEL IN SOUTH TRIBUNE OF CATHEDRAL.

STONEWORK FOR FORMAL GARDENS.

One of the latest of the arts to be acclimatised in this country (says *Stone*, of New York City) was landscape gardening. Even before we had established our nation we had made excellent progress in architecture. Indeed, we had originated an architectural style, the Colonial, of rare beauty and charm, and admirably adapted to the conditions of American life. This did not demand any special treatment of surroundings. The Colonial house was fitted as well to the village street as to the country estate. Particularly suited to it was the old-fashioned garden, with its clumps of roses, peonies, lilacs, dahlias, and hollyhocks, and its trellises, grape arbors and well houses.

With our growth in wealth and population it was inevitable that our architecture should become more elaborate and pretentious. Our rich merchants built themselves stately mansions in the cities and immense palaces set in the midst of country parks. But even yet there was little call for real landscape gardening. The city house was usually erected on a plot of circumscribed size, offering but little of privacy, and a stretch of green sward and a few shrubs were thought to be a sufficient adornment. In the country we held to the idea of the English estate, and broad expanses of turf and towering trees were favoured.

The changes that have come in very recent years are due to various causes. Our captains of industry have accumulated fortunes of such enormous proportions that they can house their families in a manner that the royal rulers of the Old World could scarcely afford. In addition to this, our social life has become very exacting and complex, and demands elaborate and beautiful settings for its functions, outdoors as well as indoors. We have reproduced, with such modifications as individual taste and the exigencies of American life would suggest, the villas of Italy, the chateaux of France, and the castles and manor houses of England. This wonderful development of our architectural practice made imperative the calling in of the aid of the landscape gardener. Naturally we have turned to Italy for our inspiration, for nowhere else has the formal garden reached such perfection. We cannot show as yet quite those entrancing vistas of the Roman and Florentine villas, where Art and Nature have worked lovingly hand-in-hand for centuries. And yet what we have accomplished within a decade or two is little short of marvellous. Throughout the length and breadth of our land, in our cities as well as in the country, we have formal gardens of exquisite taste and almost matchless beauty. It is worthy of note that most of it is of honest workmanship, not cast cement ornamentation and sham antiques. The cheap imitation invariably marks the parvenu. Natural stone, mellowing to perfect harmony with the foliage, is the only conceivable material that can be approved by correct taste.

In a formal garden every bit of stonework counts towards the desired effect, whether it be a balustered terrace or a colonnade, a tea-house or a pergola, a spouting fountain or a lily pond, or even nothing more pretentious than a sun-dial or a simple pedestal and bust. Indeed, a tiled path or a coping for parterres will afford grateful and artistic contrast for the greenery and floral bloom. It is a welcome sign of the growth of public taste that even in many of the rather humble suburban homes one can see strivings for well-ordered and formal effects by the introduction of stonework—steps or seats, a marble urn for flowers, or the like. The heedless and unthinking might, perhaps, say that they preferred nature unadorned, but this is just what they cannot have in the surroundings of the average dwelling. The closely-clipped lawns, the trimmed hedges, the paved pathways, the formal beds of flowers—all of these suggest artificiality, and a bit of well-contrived masonry and stone-carvings adds the one touch that is necessary to render them most alluring.

As to our great houses, the stately piles of stone erected after the best traditions of the French and Italian Renaissance, these would seem incomplete and unfinished without formal gardens attached. There is no fear of making these too elaborate. In many cases just as much care and almost as much money is lavished on the stonework of the gardens as of the house itself, and the result is always admirable. We are fonder of the open air than our immediate ancestors, and our most charming entertainments are staged in the garden, from the social tea to the *fete champetre*.

From time to time we have illustrated in these columns notable garden stonework. Nothing in this country in this line is more artistic or beautiful than that in the Newport home of Mr. E. J. Berwind. This was designed by Horace Trumbauer, Philadelphia, and the cut stone contractors were B. A. & G. N. Williams, of this city. The work is entirely in South Dover marble, which shows to the very best effect.

STANDARDISATION OF DRAINAGE TESTS AND CERTIFICATES IN RESPECT OF RESIDENTIAL AND SIMILAR CLASS PROPERTY.*

By G. Bertram Hartfree, F.S.I., Surveyor and Water Engineer, Alton U.D.C.

My excuse for presenting this paper before the members of the Royal Sanitary Institute is the existing condition of affairs under which private reports and certificates are issued in respect of drainage, and by which any given drain may be passed as satisfactory by one expert and totally condemned by another.

There can be no divided opinion as to safe drainage to human habitations being imperative, as, notwithstanding the assertion that sewer and drain gases are not directly the cause of infectious diseases, they are admittedly contributing factors in many illnesses, contagious and otherwise; consequently safe drainage is important. But there remains the debatable point as to the standard necessary for safety.

As in many instances it is found that too great reliance is placed by the private individual on the acts of local authorities executing their statutory obligations in respect to drainage, the position as between the local sanitary authority and the property will be reviewed, taking firstly newly erected buildings. All towns, populous places, and many rural areas enforce by-laws in respect to new buildings which invariably contain clauses affecting drainage; but, notwithstanding that these are based upon Local Government Board models, a marked difference in their text, interpretation, and application is found in various places. Three areas taken from actual experience will illustrate this point: in the first, a seaside health resort; all new

* A contribution to the "Journal" of the Royal Sanitary Institute, Vol. 36, No. 6, July 1915.

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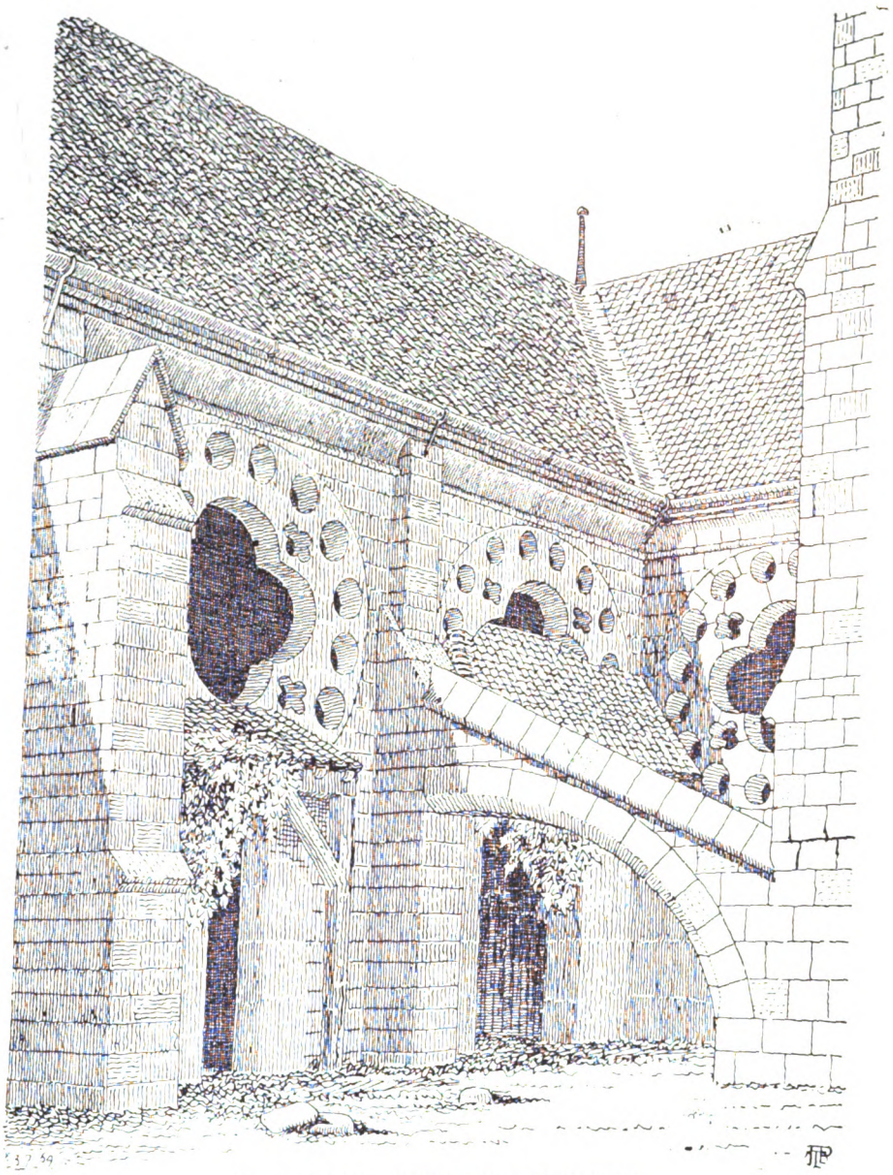


FIG. 7.—LAON.—CATHEDRAL CLOISTERS.

pipes are required to withstand a pressure hydraulic test. Vent shaft and fresh-air inlets are specified, but the provision of inspection chambers is optional; if so wished, these can be dispensed with. In number two, an inland health resort, the same rules apply as to water test and ventilation, but inspection chambers are enforced at the point of interception and all junctions and changes of direction. In the third district, partly manufacturing and partly residential, chambers are required adjoining the intercepting traps, and suitable means of access at such points as in the opinion of the Council (as advised by their surveyor) appear to be necessary. But one uniformity is found: all drains to new buildings are to be submitted to a water test, to the satisfaction of the surveyor to the local sanitary authority. Other points are variable, and considering other districts, in addition to the probable future enforcement of intercepting traps in some areas and prohibition in others, include also variation of sizes of pipes. Some districts require a minimum of six inches diameter for the main drain of a single house; in others a maximum of four inches is enforced.

Except in those cases where local conditions require special conditions, as, for instance, when subsoil drainage is necessary (and is permitted to drain into the soil sewers), there appears to be an absence of scientific sanitation in one or the other of these practices. An argument occasionally used is that two or more branch drains, four inches in diameter, make it imperative to provide a main drain not less than six inches in diameter. An important point overlooked is the fact that four inches is a minimum governed by manufacturing limitations, and the prime factors are diameter and gradient, which govern the velocity, and control the maximum quantity that will pass through in a given time.

Some districts require an outfall drain six inches in diameter, laid to a gradient of one in sixty; such a drain, when half full, is capable of discharging 120 gallons per minute, or 7,200 per hour, and, at 30 gallons per head, is capable of taking the sewage from a population of 2,880. Yet these conditions are enforced for the habitation of only six persons. As to branch drains, it is orthodox practice to take four inches as a minimum, although with suitable gradient there can be no objection to three inches, subject to suitable pipes being used. Unfortunately, stoneware pipes of this size are not as a general rule sufficiently true to permit safe results, but when cast-iron hydraulic standard pipes are used this diameter could be adopted.

On the subject of excessive diameter many instances can be recited in which the abolition of nine-inch pipes for combined drainage of blocks of cottages in favour of four-inch pipes had beneficial results. In a recent case I found pipes of the larger diameter laid to a gradient of one in 180 and draining six cottages; the drain was half full of fæcal matter undergoing septic action, the ordinary water flush being insufficient to remove the solids. The substitution of four-inch cast-iron pipes to a gradient of one in 160 (which is very flat, but in this particular case unavoidable) has remedied the difficulty, and the ordinary three-gallon flushing cisterns have proved capable of washing the fæcal matter into the public sewer.

If it may be permitted to dwell lightly on the question, "To intercept or not to intercept," one may anticipate

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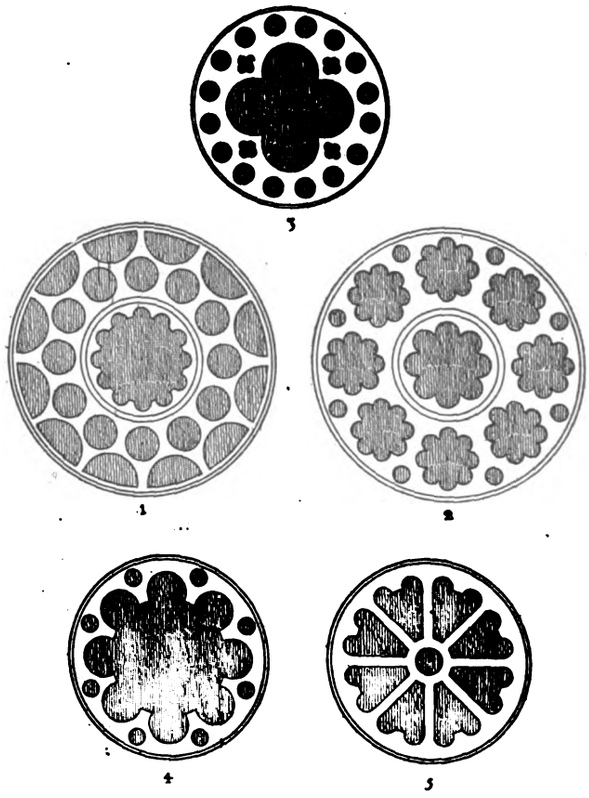


Fig. 8.—LAON.—ROSE WINDOWS.

1. Cathedral East End.
2. Cathedral North Transept.
3. Cathedral Cloister.
4. S. Martin.
5. S. John Baptist, Vaux-sous-Laon.

the future cloud of confusion (assuming the Local Government Board takes action in the matter) by assuming that some areas will still enforce the provision of intercepting traps and others will prohibit their use.

Ventilation is not a matter for narrow lines; drains must be adequately ventilated, but individual cases should be judged on their particular merits. The upcast shaft above all windows and openings is generally safe, but for large mansions, hospitals, and similar buildings a method of cremating drain emanations is desirable. The "fresh-air" inlet is a questionable advantage, as it is often an exit for foul gas; should it be in a safe spot there is no objection to its use, otherwise for cottages a single shaft, without an inlet, is preferable, whilst, for larger buildings, a number of shafts, of unequal height and arranged according to requirements, are far more satisfactory than using the open grate or one of the various valves or flaps.

Objections to inspection chambers include: (1) Cost; (2) the large area in which foul gases accumulate and the possibility of their escape through the cover joints. A chamber at the boundary of property or other suitable point is desirable, even necessary, for purposes of examination and testing of drains, and to this a sewer gas intercepting trap is considered by many a necessity; to the remainder of the system sufficient means of access is desirable, to allow, in case of stoppage at any point, the freeing of the drain without breaking the pipes. Whether such means of access should consist of access junctions and bends or inspection chambers must depend entirely on local circumstances. When strict economy is not necessary, the use of a capped bend, junction or block, around which a chamber is constructed, is suggested as a good provision. On matters of new drainage, apart from testing with water, too little attention is paid to the details of workmanship; an important point, often overlooked, is the internal examination of joints, and this can be carried out by the use of rods, or passing through a spherical object, or by the use of reflecting mirrors.

In summing up the position as to drains of new buildings, I suggest that local authorities could give more latitude to the sanitary advisers of the owners, and permit any arrangement of drains that appears to be of reasonable design, subject to the workmanship being sound.

The powers of local sanitary authorities in respect of old drains, at the utmost, is a sufficiency for the day, but generally cannot be relied on to safeguard the interests of the private individual for the morrow, as with the exception of those cases where existing drains, not formerly connected to sewers, are proposed to be joined to them, and in which the local authorities may require such drains to be laid open for examination (Sec. 38 Public Health Amendment Act, 1907), or when written complaint has been received (Sec. 41 Public Health Act, 1875) their power is limited.

Several sanitary authorities require their inspectors to test drains on private request at a framed scale of fees, which are allotted to the relief of rates; this course is unfair, both to men in private practice and to those in public service. The sanitary authorities of many health resorts supply, upon request, brief reports free of charge. As the absence of cost generally leads to great demand for such reports, there appears to be necessary a line of demarcation for this practice, as its extensive use results either in neglect of other and more important work, a course that must be deplored, or an increase in the inspecting staff, which is rarely the case. I know of areas where the drains of private residences are, when wished for, tested annually by the local Council, but the working-class habitations are rarely visited. It is presumed that such authorities exist primarily to protect those who cannot protect themselves, and all will agree that this service should not be given unless the whole of the habitations, large and small, are treated equally.

The occupier of the large house has the same rights of complaint as to nuisances as the cottager, but the requisition of a public official's services when no reason exists for believing there is a defect, but simply as a precaution on the part of the householder, is unfair to the occupant of the small dwelling, as the former is in a position to pay for advice whenever he wishes, whilst the latter is totally dependent on the sanitary authority fulfilling statutory obligations.

Assuming the local authority to be executing legal duties alone, there is no provision to satisfy the intending tenant of a residential house as to its sanitary condition. A visit to the local health department will invariably gain courteous information as to what is known in respect to the premises, but the man who is in a position to engage an expert to advise him on architectural, landscape, legal, and similar matters generally requires more information than this department can supply without detriment to its other branches, and consequently he engages an expert on this particular point.

Here it might be noted that unless it be expressly covenanted to that effect, there is no implied guarantee in the letting of an unfurnished house, other than one coming under the provision of the Housing Acts, that such house is fit for habitation.

Reverting to the engagement of a drainage expert, there is at present, to the best of my belief, no standardisation of an expert; but it is not intended here to deal with that point individually, as probably the standardisation of tests will solve this point.

In testing drains, the common practice is often one or other of the following extremes: Solely by smoke test (and for which only a single smoke case may be used); this may detect a serious leakage, but in no event, unless the pipes are uncovered, can a negative result be taken as a proof of soundness of pipes; the alternative is the pressure hydraulic test, which is unfair unless the owner's consent has first been obtained, after fully explaining its nature and effects. Many sanitarians advocate that old as well as new drains should be required at all times to withstand this test; were this common practice, the condemnation of stoneware drains and substitution of heavy pattern cast-iron pipes would result, as experience, with over a thousand drains, has shown that very few, if any, stoneware pipes will withstand such pressure. The best found, which had been laid ten years, sixty yards in length, and pipes with the original Stanford joint, had but three leakages, which were small.

The sanitary engineer, dealing with an existing drain, faces the problem of accurately obtaining information for the purpose of advising his client (the intending occupier) without injuriously affecting the property of the other party. Should a pressure water test be decided on, this should be limited to such head as would operate at any point in case of stoppage, unless a special covenant to a greater head be agreed upon. The practice of plugging all

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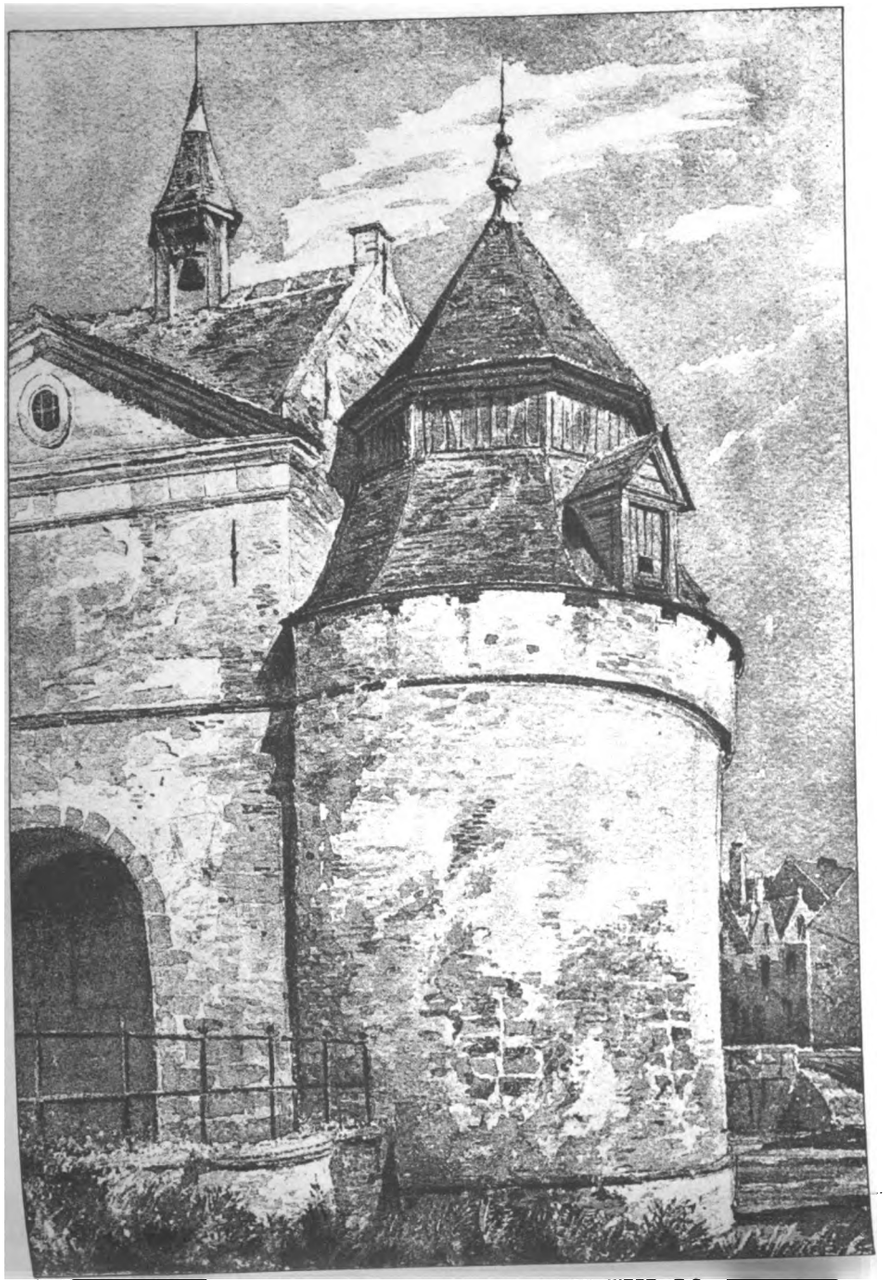
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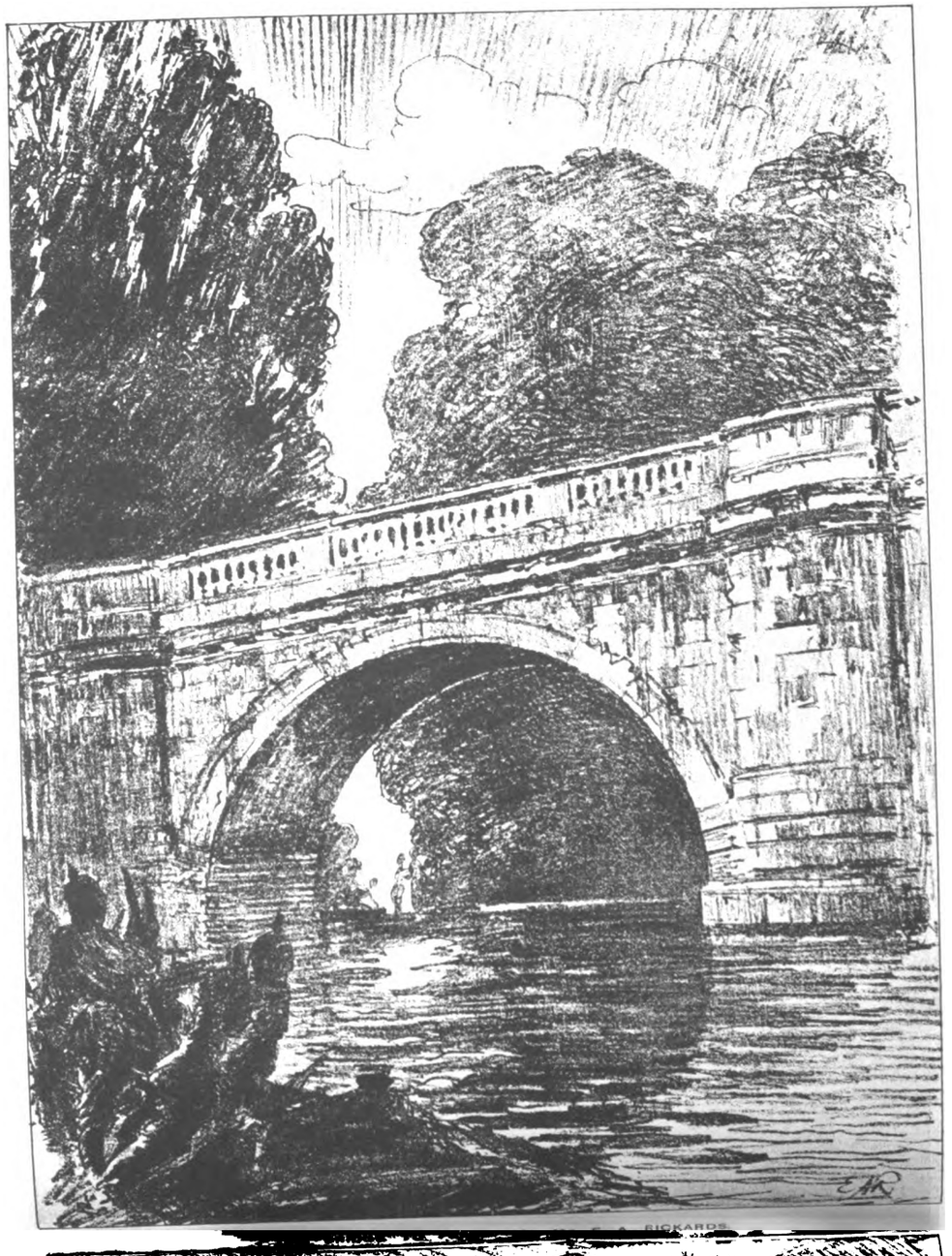
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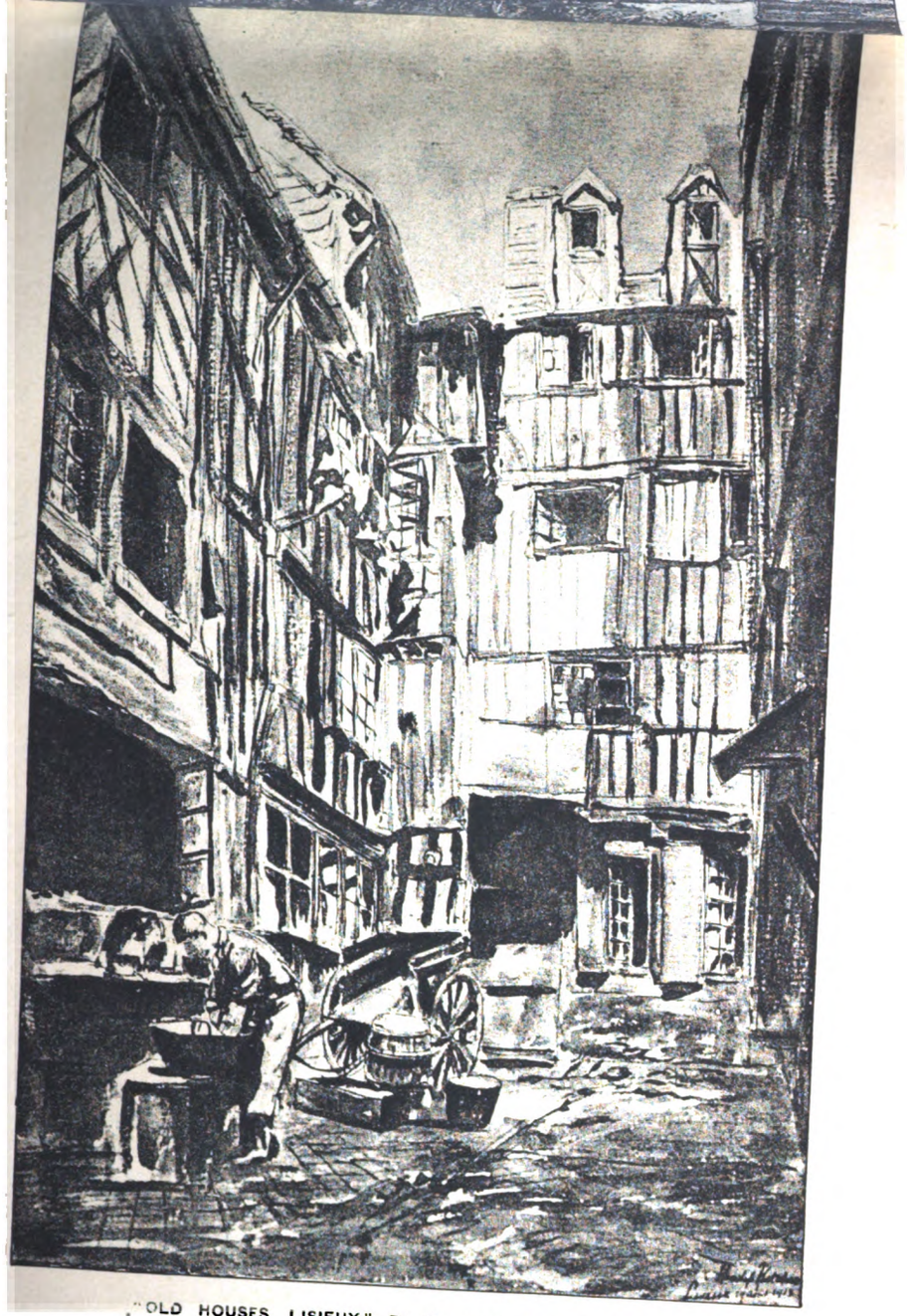
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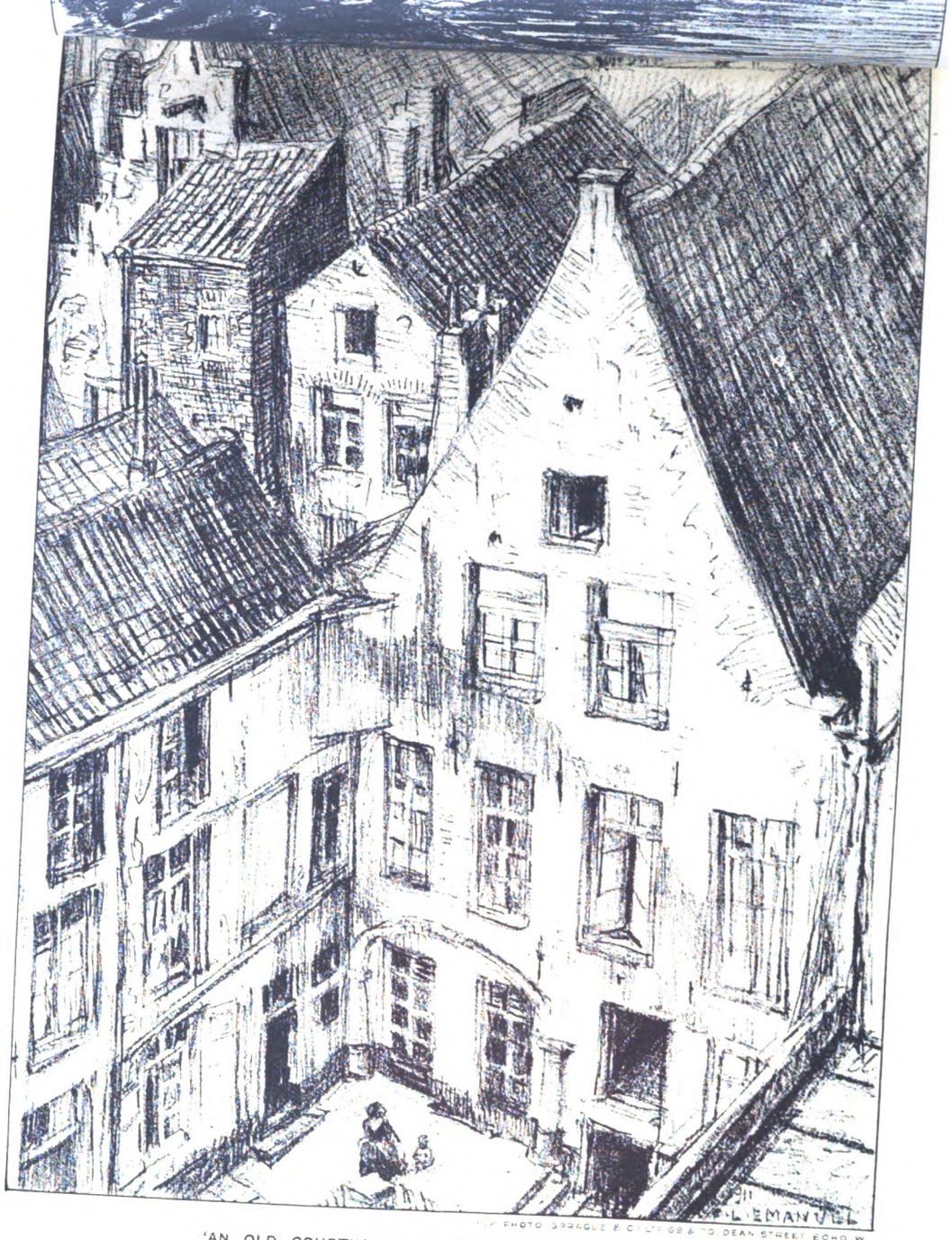
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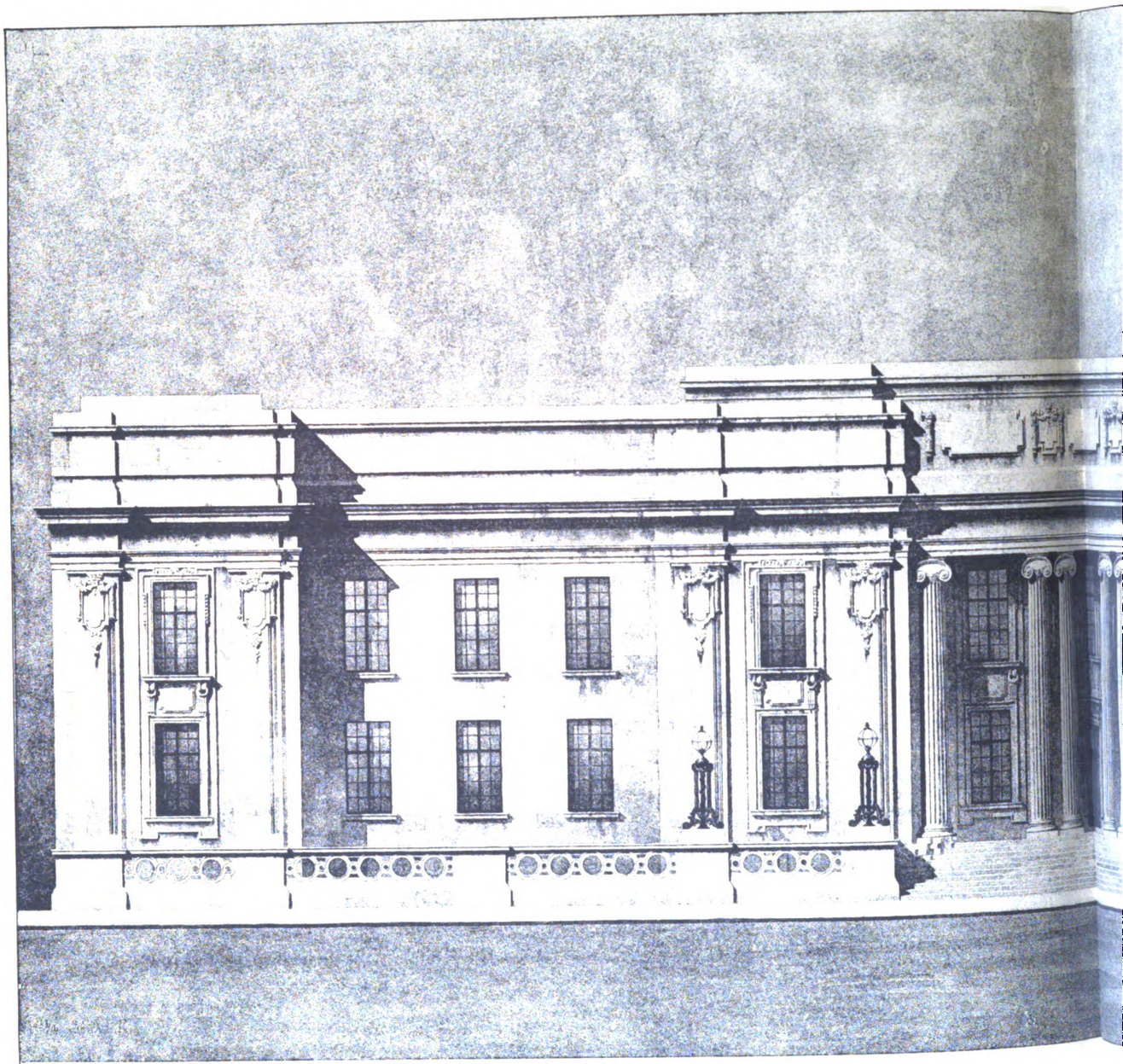


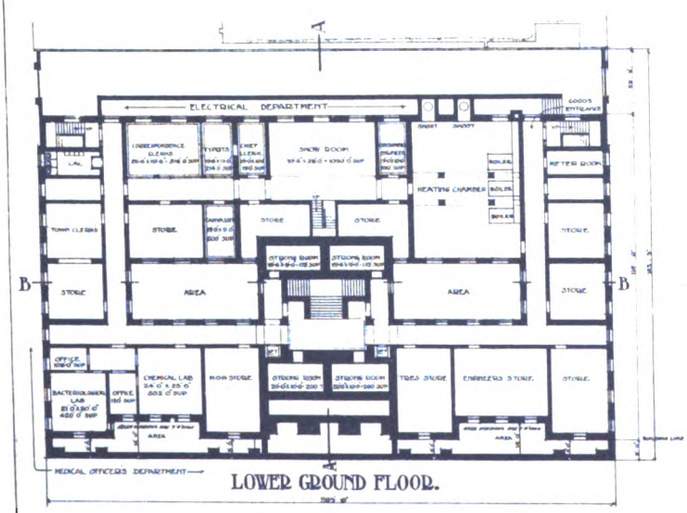
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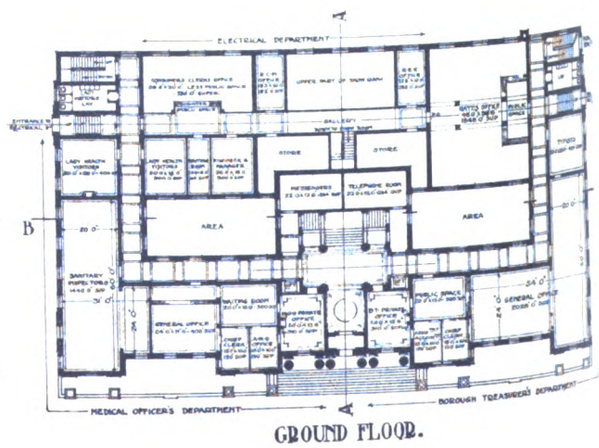
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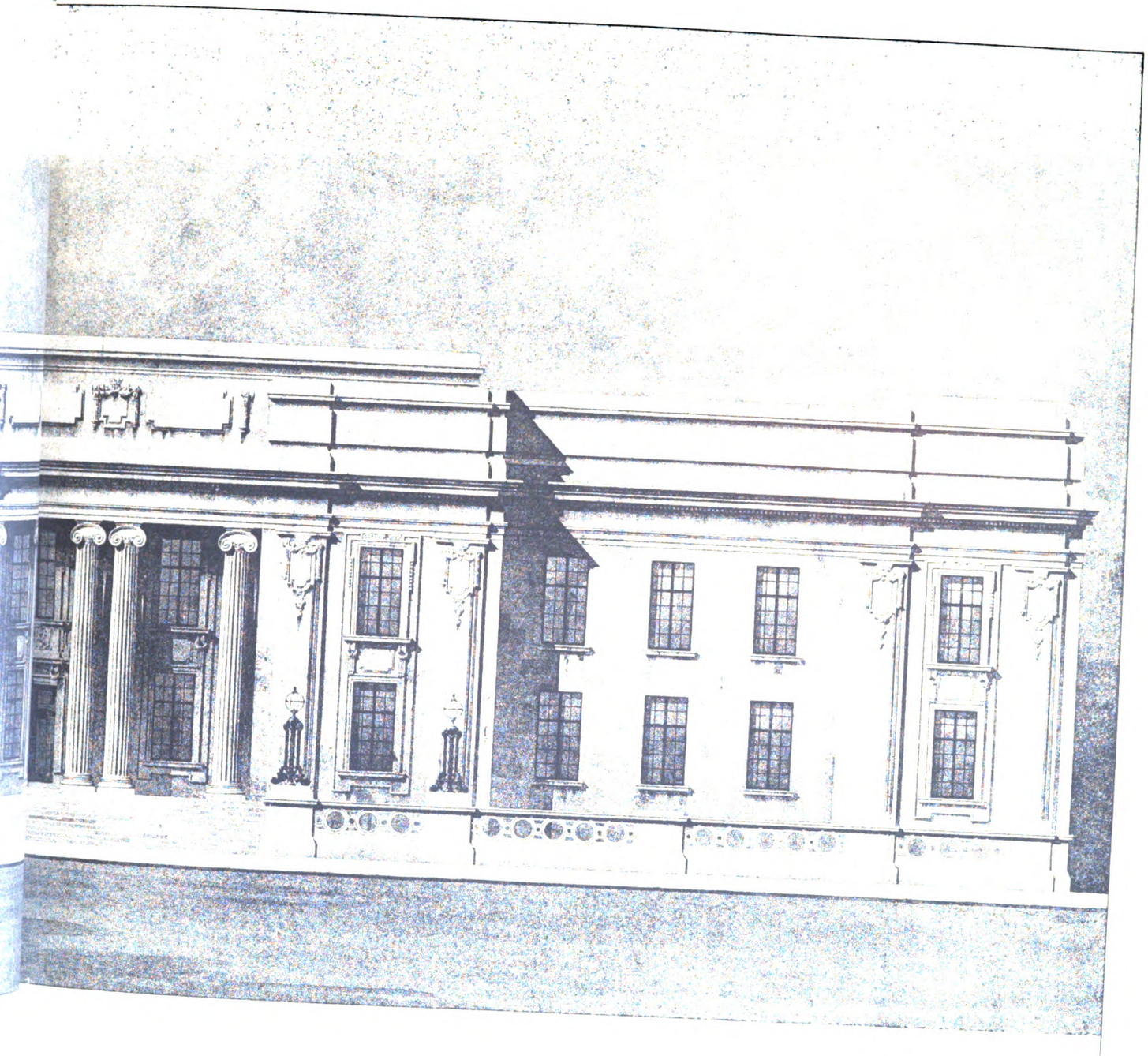


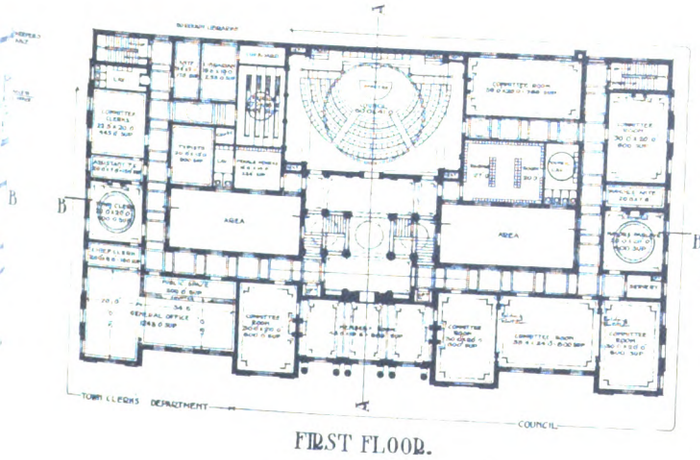
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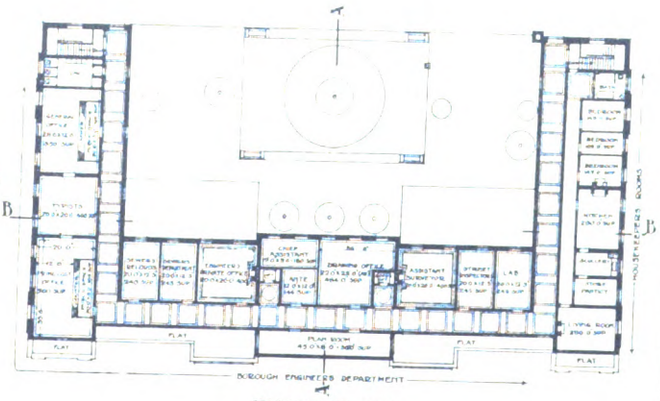
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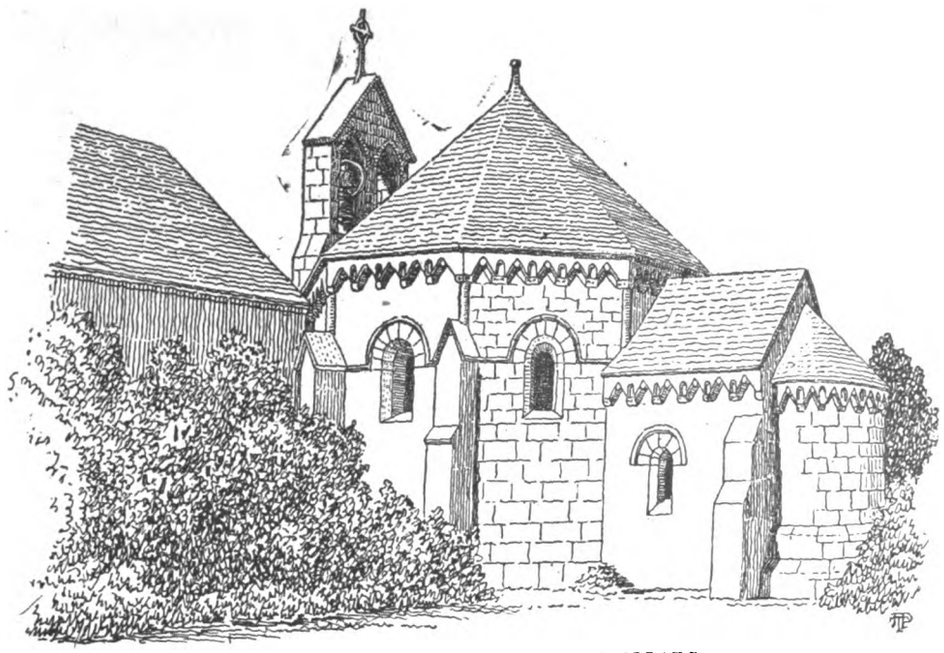


Fig. 9.—LAON.—CHURCH OF THE TEMPLARS.

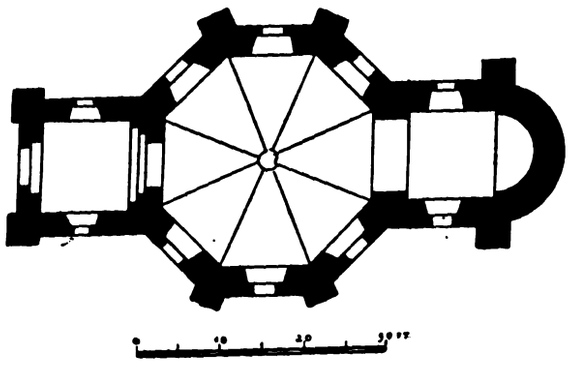


Fig. 10.—LAON.—CHURCH OF THE TEMPLARS.

inlets and testing with a head of water equal to the height of a water closet above the ground floor is, in the absence of an agreement, unfair, as the drain under no condition would be subjected to this pressure, and in the absence of the owner's consent might lead to action for damages. A test rarely applied, but exceedingly useful when pressure is to be applied, is by compressed air, which gives uniform pressure throughout the system. This can be applied excessively; in fact, with stoneware pipes it may be taken that it is an easy matter to increase pressure with air or water and cause a failure; but compressed air applied in moderation has much to recommend it, and in the absence of special conditions I would have no hesitation in approving, as sound, any stoneware drain that withstood for half an hour an internal pressure of one pound to the square inch.

When pressure tests are not specified, common practice is to apply one of the following: (1) Smoke test by case or machine; (2) chemicals; (3) coloured or measured water. These are useful for particular purposes, but, although the test appears satisfactory, it is no proof of a safe drain. Should a smell be presumed to arise from an indefinite spot, the chemical test may be useful in proving the presumption and localising a particular point; the smoke test may make it visible, but these without some other proof are no guarantee that leakages, small or large, do not exist. As an example, a drain, which from other tests was known to be defective, but which, subjected to smoke under pressure on six separate days, showed an escape on one occasion only. This variable result may be attributed to several causes. Atmospheric conditions largely affect smoke, and the practice of plugging up all openings before applying this test is to be deplored, as experience shows that generally the whole volume passes to a particular direction and the remainder of the system is uncharged. In consequence, no outlet should be stopped until the normal air is replaced by smoke-laden air. Another point to be borne in mind is that smoke naturally rises, and a downward leakage towards a water supply remains undetected. Coloured liquids are often used for the latter purpose: it is a lengthy procedure hunting for possible leakages from drains to water supply, and a true negative result can rarely be obtained by the process; for, as with smoke, a saturated earth may not pass the reagent, although when the soil is dry pollution takes place; *vice versâ*, a dry earth may absorb the testing liquid, but, with its absorbing capacity reached, contamination of water supply follows. I have on record one instance of a drain that withstood a pressure due to a head of 18 inches at a particular point, but owing to a defective gradient was relaid, and the cement joints, upon opening the ground, were found cracked, a large amount of grease and soap passing through having filled the crevices, secured them against a water test.

The use of coloured water, as generally practised, is to ascertain the courses of pipes or the presence of stagnant fæcal matter. Although rarely used, the best method is to first flush the drains with clear water and then pour down a light pink solution of permanganate of potash, this having a distinct advantage over other colourings, as foulness causes a chemical reaction resulting in a brown colouring. By increasing the proportion of the chemical, and by observation and practice, a good general idea of the internal condition of drains can be ascertained. Except when drains are very defective, the measured water test is of little use, owing to the difficulty of ascertaining at the lower end the exact quantity of water arriving, but is desirable in conjunction with other tests when low pressure is applied.

Three grades for purposes of standardisation are proposed: high pressure, medium pressure, and low pressure. In comparison with these, the test applied by the local health department may be described as non-pressure. It is presumed, in connection with the high-pressure test, that

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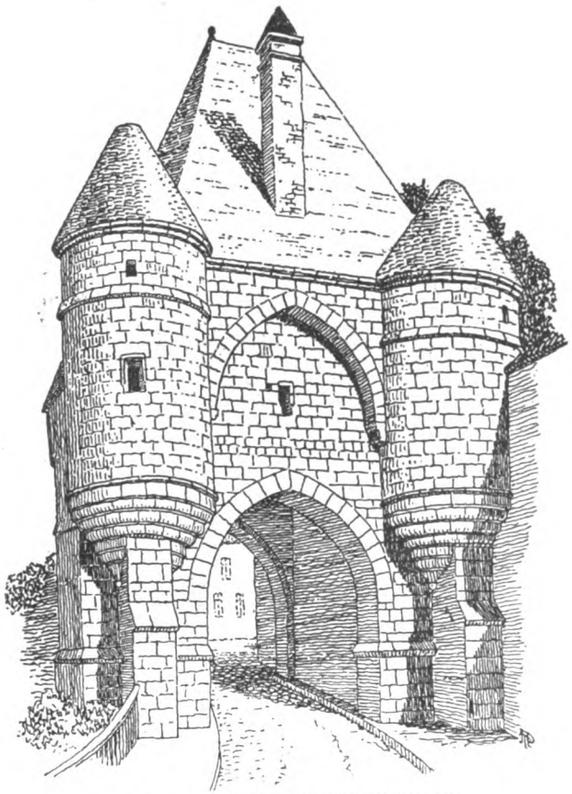


Fig. 11.—LAON.—PORTE D'ARLON.

the drains will be required to withstand any future test that may be applied; consequently hydraulic standard cast-iron pipes jointed with molten lead must be used and made to withstand a compressed-air test not less than 10 lb. to the square inch, the invert so true that with a diameter of four inches a three-and-a-half inch vulcanite ball, placed in the highest part of the drain, will by its own weight roll to the outlet of the section.

For a medium-pressure test: air compressed not less than 2½ lb. to the square inch, or water with a minimum head of two feet is applied, and the vulcanite ball required to pass through after receiving a reasonable propulsion.

The application of a low-pressure test, that shall be equitable to the interests of owner as well as occupier, is difficult but not impossible, and can be carried out in the following manner: A point of access at the lowest end of the system is imperative; from thence, the drain having been well flushed and the results noted, the low-pressure air test is applied, first stopping all untrapped openings, as well as the drain at testing point, at which a plug is connected to a long rubber tube, through which a pressure of air, insufficient to unseal the traps, but enough to displace the water in the U-shaped gauge of the apparatus, is applied. Generally, blowing in a detached end of the tube, pinching the same and forcing over the open end of U gauge is practised, but a better course is to use a small pump. This overcomes the objection to contact to mouth from drain, and also enables the level of displaced water in the gauge to be raised to a definite height. According to the time the water remains stationary in the gauge, so the condition of the drain may be taken, with long lengths; some time will be taken to obtain sufficient pressure, and it must be remembered that a loose inspection cover will defeat the test. This will illustrate the important fact that often after the expenditure of large sums in making drains to withstand higher pressures, the object is defeated by cheap or improperly fitting covers.

It is claimed for some smoke machines that they can be used for both low-pressure air and high-pressure smoke tests; possibly with great care this may be done, but their cumbersome make is an objection to general use, and, unless constantly cleaned, carbon deposits in the tubes cause irregular results. Following the air test smoke should be applied, as it is important, even with sound drains, that the ventilating openings be tested to ascertain that they are free, especially when they are not protected by wire domes. For the purpose of obtaining the fullest information coloured water should be applied, followed by passing (floating or washing) a sphere, the diameter of which should be at least three-quarters that of the pipes, and in the event of obstruction, by the use of rods or mirrors further information can be obtained. The foregoing test is not recommended for systems the previous history of which is unknown, but where a reliable certificate has been obtained as to a successful medium pressure test it is generally sufficient to satisfy the requirements for stoneware drains.

A private drainage report should be headed with a brief description of the grades of tests that may be applied, and a certificate should be treated in a similar manner or should refer to a specified report. The following is a suggested heading:—

Enclosure.—Plan.

Report upon the drainage, including all sanitary fittings connected with the premises known as ..... situate in ..... in the county of .....

Note.—The term "high-pressure test" refers only to tests with compressed air to a minimum of 10 lb. to the square inch. The term "medium-pressure test" refers to a minimum of 2 lb. by air, or a head of water not less than 2 feet on any point. The term "low-pressure test" refers to a careful examination of drains with slight pressure to prove that no defect exists, but in such case the drains are not guaranteed to withstand a test by water or air under pressure.

Closets.—Description; type; condition.

Housemaids' Sinks.—Description; type; condition.

Ordinary Sinks.—Materials; traps; disconnection.

Baths, Basins, &c.—Cased or open; trapped; disconnected; any other internal fittings.

Soil and Vent Shafts.—Materials; joints; outlets; general ventilation.

Bath and Sink Down Pipes.—Materials; description.

Drains.—With full particulars of same; tests applied; results and observations.

Water Supplies.—Source; storage; observations.

In case of low-pressure test the water supplies need most careful examination, especially when on the same site; and in such event it may be desirable to recommend that some portion of the drains be made to withstand a higher pressure if there be any possibility of future stoppage of drains causing contamination of a well. Even when drinking water is from a safe source, a rain supply intended for washing must be carefully considered.

Concise drainage certificates are advantageous, but in the interests of all parties concerned they must contain detailed particulars of tests applied, and refer to any previous report.

In conclusion, I trust I have proved: (1) That it is far easier to apply a test that will condemn a drain than one that will show it to be reasonably sound; (2) by adopting standard tests there would be little difference in the separate reports of two competent persons, which would remove the present vexation to owners and their agents who, having previously been put to considerable expense to satisfy the adviser of one tenant, find these requirements condemned on behalf of a subsequent prospective occupier; (3) if the "water test" is at all times a reasonable test in the absence of a special agreement, the use of ordinary stoneware drain pipes represents money wasted.

LACK OF LITERARY ABILITY AMONG AMERICAN ARCHITECTS.

It has long been noted among students of literature, says the *American Architect*, that the possession of ability as an architect seems to ordinarily carry with it a peculiar inability to write; or, in other words, literature and the art embraced in the practice of architecture seem to require talents seldom found in one and the same person. In the professions of law or medicine, where words are a constant and necessary medium of exchange of ideas, the training in writing obtained by constant practice has brought into notice many examples of marked literary ability. In architecture, however, it is not only impossible to name more than two or three practitioners in this country who have gained any reputation as literary artists, but the number of architects who are capable of writing concerning their own profession in a pleasing and lucid style is comparatively small.

A majority of our greatest architects have been and are men of few words, who seem to find positive embarrassment

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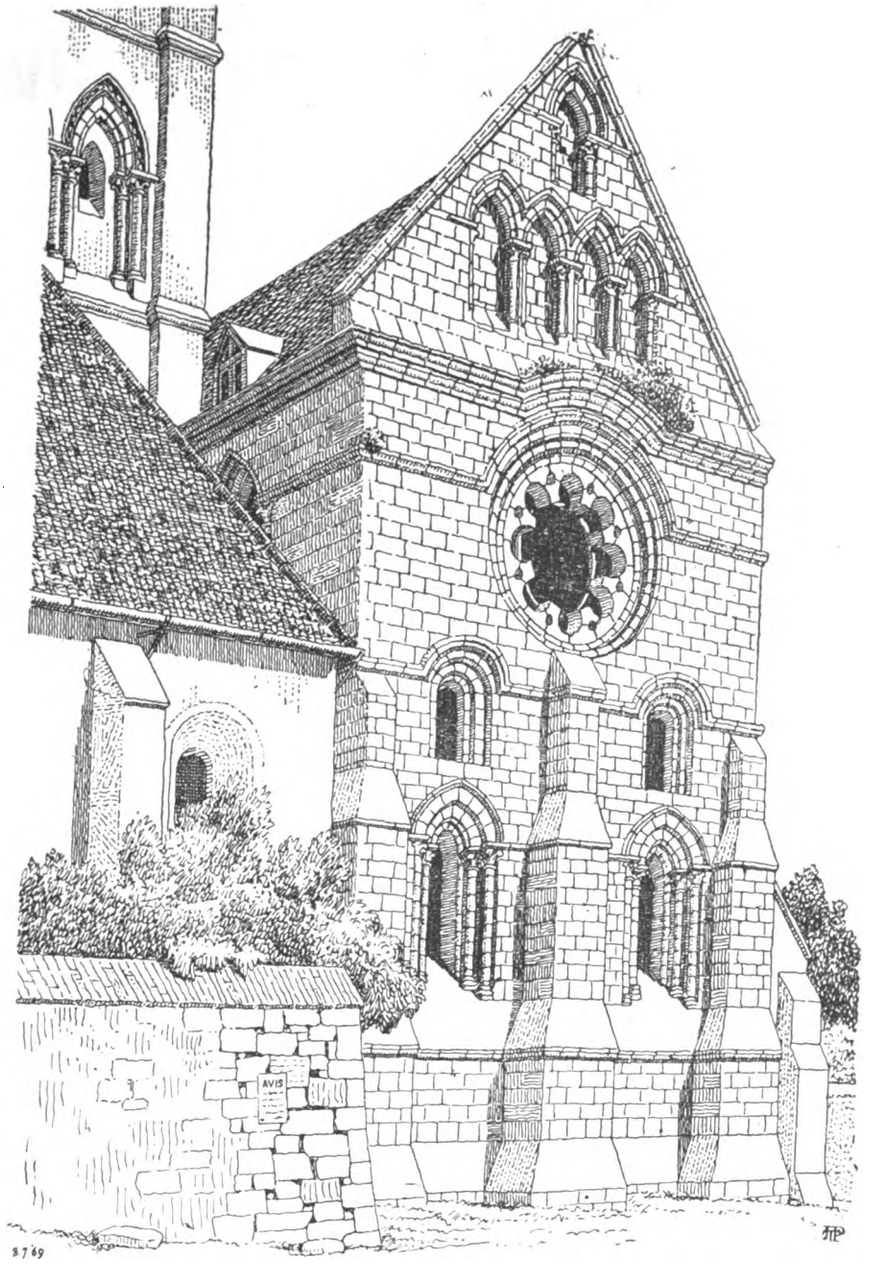


Fig. 12.—LAON.—SOUTH TRANSEPT OF S. MARTIN.

in either writing or public speaking. Others, usually less capable of deeds, have at times undertaken to write, but, as might be expected, they have with rare exceptions found recourse in the gloss of generalities that conveyed few definite ideas. The constant training of architects to think in plastic terms, and their realisation of the futility of attempting to translate these into the medium of words, has left architectural literature with little first-hand, clear and concise information concerning the feelings or impressions of the men who have accomplished great work. These must be obtained almost entirely from their designs and their completed work. For the layman unacquainted with the terms of architectural expression such a task is obviously impossible of complete performance.

The limited interest in architecture among laymen is probably due primarily to this inability to understand it unaided and the dearth of lucid explanations by the authors themselves. Painting and sculpture have an advantage in that they are in themselves more intelligible and hence more interesting to the lay mind. On the other hand, even the elemental aims of architecture involving proportion and mass demand a certain considerable education of the eye for their appreciation.

To fill in the gap thus left by a lack of architectural writers who are also great architects have been gradually developed a host of lesser men, equipped with some knowledge and understanding of architecture and a tolerable command of English, who have managed to supply the demand of the magazines for writing to fill their pages. Some of the writers are men of fine perceptions and cultured tastes, with a thorough grounding in architecture; men who have come to be recognised as authorities on the phases of architecture concerning which they write; but, unfortunately, a large proportion are pure hack-writers with few qualifications for their task. Or else they represent architects whose professional practice has been so inconsequential that their work still leaves the professional man unconvinced. It is these latter types of writers that have brought the pages of the architectural magazines into literary disrepute.

It is questionable if there is any present remedy for this condition of affairs. The pecuniary return for magazine work is so small that it will seldom tempt the busy architect to neglect for it a more lucrative employment of his time. And there are probably few who do not regard the practice of architecture as of more vital importance than writing about it, but there is unquestionably a wide and untilled field for the exceptional architects of literary ability; for men who have won the confidence of their profession in the production of a high standard of work and whose views on the different phases of architecture would be of consuming interest to every professional man. Such men must regard the service they are rendering to the public and to their art as of greater importance than any mere pecuniary gain before they will undertake the work, for, obviously, no publisher would be able to fully compensate a writer of the type contemplated.

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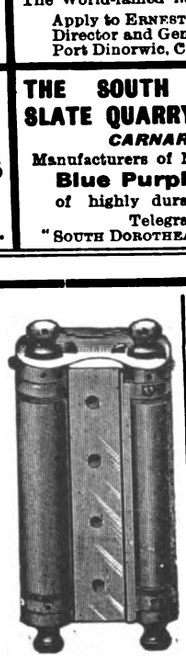
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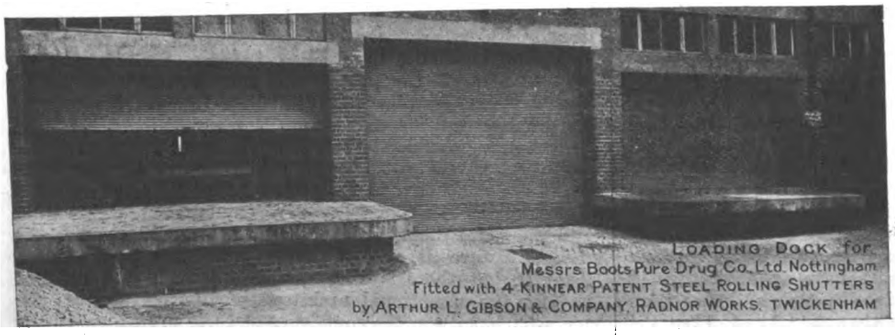
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THE LATE MR. G. H. HUNT.

A large circle of professional friends will mourn the death of Mr. G. H. Hunt, F.R.I.B.A., of Gray's Inn, which has occurred at the residence of his father, Mr. George Hunt, J.P., at Evesham. The deceased gentleman, who was sixty-four years of age and had enjoyed exceptionally good health throughout his life, was taken ill a few weeks ago, and examination revealed grave internal trouble. The efforts of specialists from London and Birmingham were unavailing, and almost from the first it was seen that his recovery was hopeless. Educated at the Cathedral School at Gloucester, Mr. Hunt was trained as an architect and met with considerable success. He was a pupil of Messrs. Nelson & Harvey, architects, of London, and a student at the Royal Academy, subsequently studying in Italy and France. His professional work was of a varied and extensive character. Jointly with the late Mr. Thomas Verity his principal works were Scarborough Spa, Nottingham Guildhall, improvements and extensions at the Agricultural Hall, Islington, and Admiralty and War Office competition plans which were awarded second place and a premium. Jointly with Mr. Bateman, of Birmingham, his plans were placed second in the Birmingham Law Courts competition. His individual work included the Municipal Buildings at Gloucester; the Hall, Thornton-le-Street, for Lord Cathcart; Sand Hutton Hall, for Sir James R. Walker, Bart.; extensions and alterations at the Evesham Public Hall and Free Library; the mansion at Wood Norton, for the Duc d'Orleans, now the property of Lord Justice Swinfen Eady; and the rebuilding of Abbey Manor, Evesham, after a fire which almost demolished the entire building. The latter work aroused much delight in the district, for under Mr. Hunt's versatile touch this noble residence of "The Squires of Evesham," standing on an eminence, reappeared in all its old-world glory. Mr. Hunt also carried out extensive alterations and additions to the head offices of the Capital and Counties Bank in London and prepared the plans for a number of the branch banks, including those at Abergavenny, Lydney, Gloucester, Cinderford, Guildford, Littlehampton, Worthing, Broadway, and Moreton-in-the-Marsh. The deceased was a well-known Freemason, and took great interest in the activities of the craft. The funeral took place at Evesham last Friday amid a remarkable demonstration of public and private grief. The deceased gentleman was in the habit of spending the week-end with his father, who is in his eighty-ninth year, and whose public and private activities have contributed largely to the advancement of the town.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Land "Patterns" in Art.

Sir,—It is a long, long way to Victoria, B.C., and also to the Pyramids, B.C., but I do not doubt that your correspondent Mr. S. James will eventually read this, and I have every belief that the old Pharaohs have already been chuckling over the letter upon "Land Patterns in Art" in the latest issue of your informative paper. The idea as to the prototype of the Pyramids is even more comical than the exploded notion that the Gothic arch found its origin in the over-arching boughs of trees or the interlacing of semi-circular Norman arches.

If a "broad river" of cloud were never to be seen except over the course of a stream, something might be perhaps urged in favour of Mr. James's contention. Are we to believe that the moon is inhabited because of the featured representation observable in that luminary? Are we to believe that the Milky Way is an index to a large dairy farm here below, where the maids or men have heedlessly kicked the bucket? Can Mr. James or anyone else seriously suggest that the physical contouring of Italy is responsible for art forms, when it is remembered that the latter were produced at a period before physical contouring of the land was generally known? But I might continue, Sir, for some time, propounding questions which carry upon the face of them their own reply. The Gothic arch was the product of necessity and art: the Pyramids were the product of ethical ideas and science—and in each case there was an admixture of religious sentiment—but Nature had nothing to say one way or the other.—Yours, &c., Sic itur ad astra.

The Policyholders' Protection League.

Sir,—One of the most disquieting features of the war, the full force of which will not be disclosed until the early part of next year, is the position of with-profit policyholders in the various insurance companies.

In the course of the debate in the House of Commons immediately following the introduction of the Bill authorising the new War Loan, the serious effect which the new borrowing will have upon all existing gilt-edged securities was pointed out by Sir Thomas P. Whittaker, Chairman and Managing Director of one of the largest mutual life offices in the United Kingdom.

The troubles arising through the enormous depreciation in the value of gilt-edged and other securities are not yet thoroughly realised, and it is very doubtful whether insurance companies are dealing fairly with their policyholders in withholding from them the real position.

It will be of interest to your readers to know that this League was formed early in 1913 at a meeting held at the Cannon Street Hotel, presided over by the late Mr. G. Humphreys-Davies, Consulting Surveyor to the Machinery Users' Association (Incorporated). A number of gentlemen consisting of leading bankers, solicitors, doctors and others met primarily to protect their own interests as with-profit policyholders in two well-known British life offices, under circumstances that need not now be gone into, and it was proposed also to protect the interests of with-profit policyholders in similar institutions as and when occasion should arise.

Such an occasion has now arisen, and it is proposed to enlarge the League and to establish branches in all important centres.

A large number of the companies have to investigate their affairs as at the end of the present year. Others need not do so till later. It is impossible to say how they are affected by the further depreciation in values and the higher rate of mortality caused through so many valuable lives being lost in the country's defence.

In view of the extraordinary circumstances prevailing it is quite impossible to forecast what any one of them will do. It is also possible, and indeed very probable, that many of them will be unable to pay any bonuses at all. It is not unlikely that others will make hurried and ill-considered proposals for amalgamation with rival institutions on terms detrimental to with-profit policyholders. Whatever should transpire during the next few months, it is essential for with-profit policyholders to be in a position to safeguard their own interests.

One very real danger is that if some of the companies should seek to amalgamate with other companies on terms detrimental to with-profit policyholders, or should attempt to deprive policyholders of bonuses and at the same time pay dividends to shareholders (as has been done in the past) there would be no time to act effectively if policyholders are not well organised beforehand. Another danger is that many companies will attempt to strengthen their positions at the expense of with-profit policyholders who would be quite helpless unless organised.

This League therefore invites the immediate co-operation and registration of all with-profit policyholders, who should communicate with me if they desire to associate themselves in this movement for their own protection.—Yours, &c.,

The Policyholders' Protection League.
A. H. Swain, Hon. Sec.
15 Mansion House Chambers, Queen Victoria Street,
London, E.C.: August 19.

A report was presented to the Hampshire County Council upon the new asylum at Park Prewett, Basingstoke, where the work has not progressed so well owing to the reduction in the number of workmen. It is, however, being well executed and of good materials, and is none the worse structurally for the slow progress. The Asylum Committee have accepted the following tenders: For the bakery, Messrs. Werner & Co., Peterborough, £986; kitchens, Messrs. Killick & Cochran, Liverpool, £2,619; laundry, Messrs. Summerscales, Ltd., Keighley, £3,207. Tenders for the electrical plant have been invited, and in reply twenty-one tenders have been received, ranging from £22,855 to £15,489. The committee have, subject to the approval of the Secretary of State, decided to accept the lowest, that of Messrs. Hill, Upton & Co., of Oxford, subject to the sanction of the Local Government Board.

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BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Beaconsfield.—Shop and house, Station Road. Messrs. Burgess & Myers, architects, 122 Victoria Street, London, S.W.

Workshop, London End, for Right Hon. Lord Burnham.

CAMBRIDGESHIRE.

Cambridge.—House, Storey's Way, for Mr. J. Dunn.

Ely.—Isolation hospital. Mr. S. J. Wearing, A.R.I.B.A., architect, 15 Upper King Street, Norwich. Messrs. Parren & Son (of Earith), contractors.

CHESHIRE.

Macclesfield.—No. 381 Park Lane: additions, for Mr. Goodwin.

No. 49 Grange Street: alterations, for Mr. W. Heath.

Stables, &c., Black Lane, for Mr. J. S. Miller.

Cinematograph theatre, Jordangate, for Mr. E. L. Goddard.

Waste store, Gunco Lane, for Messrs. Backhouse & Coppock.

CORNWALL.

Redruth.—Shop and premises, for the West End Drapery Stores.

DEVON.

Paignton.—Proposed isolation hospital (£2,800)

DURHAM.

Sunderland.—Sanatorium: tuberculosis pavilion.

HAMPSHIRE.

Haslar. — Military Hospital: "Canadian Ladies' Gift" block. Mr. J. Hart, contractor, South Wharf, Cleveland Road, Gosport.

Sholing.—Infants' and girls' Council school, Station Road (£9,550).

KENT.

Orpington.—Hospital for wounded Canadians (for 1,040 beds).

Tunbridge Wells.—Warehouse and alterations. Mr. H. Elwig, architect, 25 Mount Ephraim Road. Mr. J. Jarvis, contractor, 6 Vale Road (£776).

LANCASHIRE.

Ashton-under-Lyne.—Two shops and a billiards saloon, Wellington Road, for Mr. T. Calverley.

Bolton.—Ten houses, Normandy Street, Hulton, for Messrs. Hughes Bros.

Great Harwood.—Two houses, Cliffe Lane, for Mr. H. Cronshaw.

Lytham.—Parish Church: hall.

Manchester.—The "New" Theatre: renovation, &c., as "The New Queen's" Theatre. Mr. F. Tugwell, architect.

Warrington.—Smallpox hospital.

LINCOLNSHIRE.

Market Deeping.—Business premises. Messrs. Townsend & Fordham, R.I.B.A., architects, Cross Street, Peterborough.

SHROPSHIRE.

Hadley.—Proposed isolation hospital.

Shrewsbury.—Town hall and municipal offices.

SOMERSET.

Bath.—Military hospital, Combe Park.

WARWICKSHIRE.

Coventry.—Passenger Station: alterations, for L. & N.W. Railway Co.

WESTMORLAND.

Kendal.—The Rainbow Hotel: alterations, for Mr. J. Graham.

WORCESTERSHIRE.

Stourbridge —St. Thomas's Church: proposed hall.

YORKSHIRE.

Barnsley.—Bungalow, Cope Street. Mr. E. W. Dyson, architect, 10 Regent Street.

Hemsworth.—Mission church, Moorthorpe.

Houses, Moorthorpe, for Mr. R. Thomas.

Kiveton Park.—P.M. Manse: additions.

Leeds.—Shop and cinematograph theatre, West Street. Mr. W. H. Wood, architect, Queen Square.

Mytholmroyd.—Post Office, Burnley Road. Messrs. Jackson & Fox, architects, 7 Rawson Street, Halifax.

WALES.

Beulah.—County Council school. County architect, Aberystwyth.

SCOTLAND.

Clydebank.—Seven tenements of houses, off Clyde Street, for Messrs. J. Brown & Co., Ltd. (£12,000).

Comrie.—Parish church: proposed hall.

Dunfermline.—Board School (£20,000).

Dundee.—Garage and court, Victoria Road, Broughty Ferry, for Mr. J. Findlay.

Galashiels.—Post Office, Sime Place: additions and alterations.

IRELAND.

Lurgan.—Fifty-three artisans' dwellings, Wellington Street: completion (£1,200).

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 1,438. Jan. 19, 1914.—Dated under International Convention Feb. 8, 1913.—Alpine Maschinenfabrik G.M.B.H., Augsburg, Germany, and F. M. Meyer, 31 Breitestr, Saarbrucken, Germany. Manufacture of cementitious material.

2,020. Jan. 26, 1914.—Bernhard Kohnstein, 73 Rosensteingasse, Vienna, XVII., Austria, and J. M. Muchka, 39 Wallgasse, Vienna, VI., Austria. Process of eliminating the iron from and sterilising water intended for commercial and drinking purposes.

2,947. Feb. 4, 1914.—Firm Mannesmannrohren-Werke, Dusseldorf, Germany, and Ludwig Schomburg, 53 Kaiserallee, Gelsenkirchen, Germany. Packings for socket pipes.

3,005. Feb. 5, 1914.—F. W. Stangenberg, Postschliessfach, Koln a/Rh., Germany. Hoist for building materials.

4,188. Feb. 18, 1914.—Dr. Otto Reich, 8 Saarplatz, Vienna, XIX., Austria. Electric signalling systems for burglar and fire alarms.

11,990. Nov. 16, 1914.—Mrs. M. H. Ketton, 8 Colliery Road, Nottingham. Reversible sashes and the like.

12,531. May 21, 1914.—Bernhard Gratz, 25 Bergmannstr., Berlin. Discharge valve.

17,674. July 25, 1914.—F. E. Sears, 6 Barretts Grove, Stoke Newington, N. Door bolts.

17,756. July 27, 1914.—E. Longan y Senan, Calle del Arrabal, Aytona, Spain. Cements and concretes.

17,831. July 28, 1914.—H. W. Cowan, 368 George Street, Toronto. Filters.

18,439. Aug. 8, 1914.—W. W. Crawford, 75 Caxton House, Westminster, S.W. Fireproof composition.

19,008. Aug. 24, 1914.—Gus Jatko, Ferry, Washington, U.S.A. Paper hangers' pasting machines.

20,060. Sept. 23, 1914.—C. J. & Ernest Hartley, Kearsley Chambers, Stoke-on-Trent. Sewage distributors.

21,643. Oct. 28, 1914.—Thos. Kerr, 194 High Street, Perth, Scotland. Electrically operated alarm device for use in connection with door locks and catches.

21,988. Nov. 4, 1914.—W. R. Walker, 26 Craddock Road, Smethwick. Means for preventing woodwork used in bakeries and other highly heated places from becoming warped or distorted by the heat.

22,150. Nov. 6, 1914.—J. F. Wheelock, Dobbins, Yuba, California. Electric water heater.

22,439. Nov. 12, 1914.—G. A. Herdman, 2 Coatham Villas, Coatham, Redcar. Means for preventing the radiation of heat from pipes.

24,722. Dec. 29, 1914.—Eli Adler, 336 Grant Street, Buffalo, N.Y., U.S.A. Safety grips for beams and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

ACCORDING to Reuter's special correspondent at Zurich, to alleviate the great distress which the war has brought to architects, designers, sculptors, and other professional men, the Vienna City Council has resolved to carry out work which will furnish them with moderate remuneration, and at the same time add to the attractiveness of the city. As a beginning, artistic drinking fountains will be erected in the grounds of new schools and in children's playing spaces, in public parks and gardens. For the first of these, at the Schubert School, the Council has appropriated 5,500 crowns (about £230).

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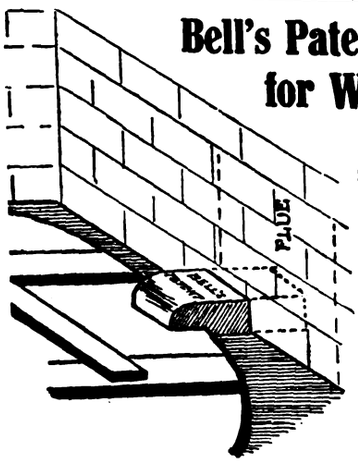
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THE ARCHITECT

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FORTHCOMING EVENTS.

Tuesday, September 7.

British Association for the Advancement of Science: Annual meeting opens at Free Trade Hall, Manchester (four days).

Thursday, September 23.

Iron and Steel Institute: Autumn Meeting at the Institution of Civil Engineers (two days).

CRITICISM OF ART.

IF it be true that a work of art is the incarnation of the æsthetic emotion felt by the artist in the presence of Nature, it might appear that such incarnation does not lend itself to a purely theoretical or intellectual criticism, which in its appreciations ignores the feelings and deals only with the intelligence. Now, as æsthetic emotion crystallised in a concrete and sensible form, the work of art presents, and must present, certain exterior characteristics in which the qualities of the emotion which animates it appear, and without which it could not be beautiful. With the help of common sense in its most general mode, the intelligence can, even if it do not understand works of art—since it is incapable of penetrating to their depths—at least distinguish truly beautiful works by the presence or absence of these marks. The student of æsthetics can thus formulate rules whose observance serves in some way as a sign and condition of harmony.

In discussing this question, Paul Gaultier, in his book on "The Meaning of Art," points out that the æsthetic emotion being first of all harmonious, it is clear that the work of art ought to possess the harmony which, however disagreeable and disjointed the subject may be, imprints on it a serenity by which we can immediately distinguish it from the actual thing. He instances the "Laocoön," the "Niobe," the "Christ" by Carpeaux, the "Pieta" by Michelangelo, the "Requiem" by Berlioz, and the "Lamentations of Orpheus," as possessing a majesty and solemnity which prevents us from confusing them with the spectacle of reality itself.

The harmony which every work of art, if genuinely such, will and must possess is the harmony that comes from the expression of unity of emotion. Such harmony exists in the "Maison Carrée." It is absent from many another building of perfect regularity and symmetry. Axial lines alone will not produce harmony of expression if the emotion to be expressed is absent. Indeed, axial lines and symmetrical balance of parts are not necessary to unity of expression. What is indispensable is the unity which arises from emotion, and manifests its rule. It is the unity of artistic inspiration rendered visible; not that intellectualistic unity which incited the critics of earlier times to condemn certain painters for having in the same work traced many episodes in the life of one person, as Memline did in the "Seven Joys" and "Seven Sorrows" of the Virgin. For the rest, this organic unity reveals itself the greater as it gathers in one a number of elements. This is the reason that many students of æsthetics have defined beauty as "Unity in Variety," while their intellectualistic prejudice has led them to seek it in the things represented rather than in the way in which they are represented.

Unity in variety, though essential in art, must not be supposed to imply that the sympathetic power of a work of art depends on the multiplicity of the men or things represented. There are pictures showing many figures which are really poor, while there are other very great ones, such as the "Erasmus" of Holbein, which portray but a single face. Unity in variety as an essential in art must be the reflection of the unity of feeling in the thought of the artist rather than an intellectual imposition of unity in restraint upon the movement of inspiration. The disregard of this criterion was the error of the so-called "Academic" school, which did not perceive that the only unity which matters is a unity loved and felt in the heart of the artist, and not a plated unity, one imposed from outside by the reasoning of a professor or a dialectician.

In Gaultier's view, æsthetic emotion being a fusion of nature and personality, the work of art shows likeness to reality or "semblance" of it, and this constitutes another æsthetic character or mark. This does not mean, certainly, that every work of art is, or ought to be, strictly accurate in its representation. Gaultier characterises the "semblant" as limited only by the possible, not by the true or the real. It by no means requires, as Courbet supposed, the exclusion from the plastic arts of all beings which are not found in nature—Fra Angelico's angels, the devils on the cathedral, Goya's monsters, Boucher's cupids, gods and goddesses, dragons and chimeras.

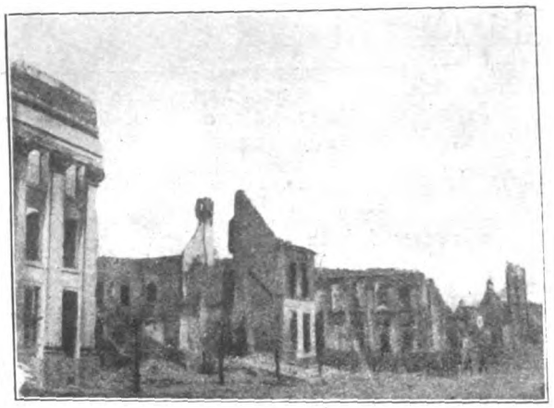
By the "semblant," then, is meant, on the whole, nothing else than the character of possibility which should clothe the most extravagant imaginations in painting or sculpture, in architecture or in music. Works in which the unlikely appears, indicating a want of life, the abortive fancies of sickly brains, painful creations of unsound minds, bad imitations or misinterpretations of reality, should, according to the theory of "semblant," be placed outside the domain of art.

The weakness of using "semblant" as an aid to criticism is that the application of the test is dependent upon the knowledge and experience, as well as the imagination, of the individual critic. What to one may appear not only possible, but probable, will to another be preposterously impossible. And yet it seems that we want some such criterion, for its absence leads to Cubism, Futurism, Vorticism, and the rest, whilst, on the other hand, the popular idea of ultra-realistic portrayal of Nature as the evidence of consummate art, rather than of artifice, needs a restraining limitation.

A necessary qualification of every work of art is that the record of æsthetic emotion which it contains should appeal to the beholder or listener. There can be no art in the expression which is so inchoate and inarticulate that it finds no response in others. Hence we have as a criterion of a work of art the effect upon the observer. True it is that amongst observers there will arise differences from the fact that there are some persons of fine and others of false sensibility; some normal, others perverted; some deflected by personal interest and passion, others by prejudice; while many divergencies seem to arise from lack of proper æsthetic education.

Let it not be said that the need of preliminary education in exercising the power of sympathetic response, in feeling the thrill of union with the æsthetic emotion, embodied in works of art and constituting their

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A ROAD IN YPRES.

From a photograph by a member of *The Architect's* staff on active service.

glory, proves that the faculty is artificial and unnatural, an arbitrary product of mode and convention lacking a basis of certainty and truth. The opposite is true. The education which is indispensable if we wish to cultivate the appreciation of beauty, whatever it may be, is not so much an acquisition or instruction as an apprenticeship in refinement and a preparation by the removal of the dross which in ordinary life obscures the sensibility of the common man. It is the clearing away, in other words, of all the parasitic vegetations—interests, desires, passions, prejudices—which hinders its normal exercise in the ordinary man. Rather than a process of acquisition, it is one of deliverance from the habits which prevent us from recognising æsthetic emotion in the diverse forms it assumes in time and place. The faculty of receptiveness for the expression of the artist needs to be cleared from every deterrent to its activity.

To the fully emancipated receptiveness the value of the æsthetic expression in any particular work of art will be estimable by the force of the sympathetic emotion aroused. A work which entrances us or throws us into ecstasy—a work which haunts us, so to speak—has more chance of being really beautiful than a work which merely pleases us. It is probable that a work remaining in our memory, after having moved us to our very souls, contains greater æsthetic emotion than that which is immediately forgotten.

Lastly, we can value the beauty of works of art more or less by the perfection with which they translate the æsthetic emotion which it is their object to reveal. Since art is the concrete form of this emotion, intentions do not count as far as art is concerned; nothing counts in painting, sculpture, architecture, and music except what is expressed.

NOTES AND COMMENTS.

IN the circular letter addressed to the Press by the Secretary of the Royal Photographic Society, which is to be found in our Correspondence column, the photographer's point of view is, of course, dominant. But restoration from photographs, even if they be "on a scale large enough to show the tool marks," is not an easy matter in default of measured drawings. The making of photographs is but one part of the work. They would be of little real use unless collated and indexed. Measured drawings innumerable are in existence made by architectural students, but here again they are of no avail until collated and indexed. To some extent this has been done in the numerous sketch-books of the Architectural Association and other bodies.

The report of the Department of Public Works of New South Wales makes reference to the manner in which the Electrical Branch takes advantage of the advance in illuminating engineering made of recent years. With respect to the public buildings and institutions of New South Wales we are told that now the lighting of all buildings continues to proceed along definite lines, the number of "foot-candles" of illumination required being settled beforehand for each particular class of office-chamber, workshop, or other room to be lighted, and the height and spacing of the lamps and the whole wiring system being designed in accordance therewith. Photometric measurements are subsequently taken, and data are thus being accumulated enabling work as it comes along to be handled with precision and with the certainty that the resulting light distribution will prove satisfactory. All the newer methods and illuminants available are receiving due attention and actual test where suitable opportunities offer for their adoption. For instance, inverted lighting is receiving an extended practical trial in certain drawing offices, and semi-indirect lighting and the half-"watt" lamp are also being tried in suitable positions. Performance data for these methods are being accumulated from actual observation, and continually used in the design of new installations.

The Guildhall Curator, Mr. Bernard Kettle, reports that when the old General Post Office in St. Martin's-le-Grand was demolished a large series of Roman rubbish pits was disclosed. The lowest portions of 120 of these were carefully excavated. The "finds" included a few whole pots and many thousands of fragments of Samian and coarse pottery, besides building materials, whetstones, beads, knives, coins, and other small objects. It has been possible to assign dates to most of the holes—between A.D. 50 and 200. By the association in the same hole of dateable with undateable pottery light has been thrown upon many types of the latter. Last summer while the buildings 3-6 King William Street were being demolished another series of five large Roman pits was uncovered. From the fragments thus obtained nine Samian vessels of the first century have been pieced together, and are now in the Guildhall Museum. These include a decorated vessel finer than any previously found in London, and two specimens of a shape unknown hitherto in England. A lamp, two coins, and other objects of pottery and bronze were also obtained from this source.

Amid the exciting news of the present war an event of great interest to lovers of art has passed almost unnoticed—the rediscovery of the resting-place of the remains of the great painter Fra Angelico. There has been for long great uncertainty regarding the tomb of the famous Dominican artist of the fifteenth century. All doubt has now been solved by the researches of Signor Rosadi, Under Secretary of State in the Ministry of Public Instruction, and of his friend the Dominican Father Ludovico Ferretti. According to the chronicles of the Church of Sta. Maria sopra Minerva in Rome, the body of the great artist had been placed in a marble sepulchre in the Chapel of St. Thomas, close by the Christ of Michael Angelo. In the jubilee year 1600, however, this chapel had been demolished to create a fresh exit from the church. Excavations have recently been undertaken, and now the actual tomb of Fra Angelico has been found and identified. An official report has been published and signed, among others, by a Dominican friar from the Convent of San Dominico at Fiesole, where for so many years the famous painter lived and worked, and from which he derived the name by which he is so often known, of Fra Giovanni da Fiesole.

In a circular letter inviting subscriptions towards a fund for preserving the old Castle Dairy in Wildman Street, Kendal, Mr. Edward Wilson, the hon. secretary of the committee having the matter in hand, gives some interesting particulars of the building. He says:—In an ancient town like Kendal, with its old-world history of the coming of the Flemings to teach us the weaving

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and the dyeing of the famous Kendal-green, we can ill afford at this time, when our interest in the Flemings has been revived by the presence of refugees in our midst, to allow perhaps the oldest house now standing in this town that gave them welcome under happier circumstances, to disappear without making some effort to retain it. The house is of the sixteenth century, and apparently was built by Anthony Garnett, in the year 1564, upon the site of the ancient Castle Farm; indeed the name is still preserved as "The Castle Dairy." It consists of a low central hall with a two-storeyed wing at each end, and a small annexe behind. Apart from the Tudor architecture of the whole building, there are several points of special interest. On a stone outside, above the central window, are the initials "A. G." with a cord of sundry knots entwined and the date 1564; the head stone of the ground floor window in the south-west wing is inscribed with the motto, "Qvi vadit plane—vadit sane," whilst there are several diamond panes stained with coat-armour. The most interesting room is a bed chamber in the north-east wing, spoken of as "the chapel," with its vaulted ceiling of plaster, its moulded oak cross-ribs with carved bosses and shields at the intersections, two of which remain. On one side of the fireplace at the springing of the vault is a finely carved griffin. There is also a fine oak bedstead, which evidently belonged to Anthony Garnett, with his initials "A. G." on the shield, and a massive oak cupboard, with the same initials and the date 1567. The present owners have agreed to sell the house as it stands for the sum of £900, and the contents for £300, but give a limited time for the money to be raised. Failing this, the house will be pulled down and a frontage of modern shops will take its place. The committee have taken some trouble to ascertain from competent authorities the worth of the building and the contents, and believe that the prices are reasonable. They would never have thought of appealing to the public at such a time for this purpose had they not felt that the public might justly blame them if they had allowed the house to be demolished without making any effort to save it; for we cannot allow these ancient landmarks to disappear with great loss to the historical associations of such an ancient town.

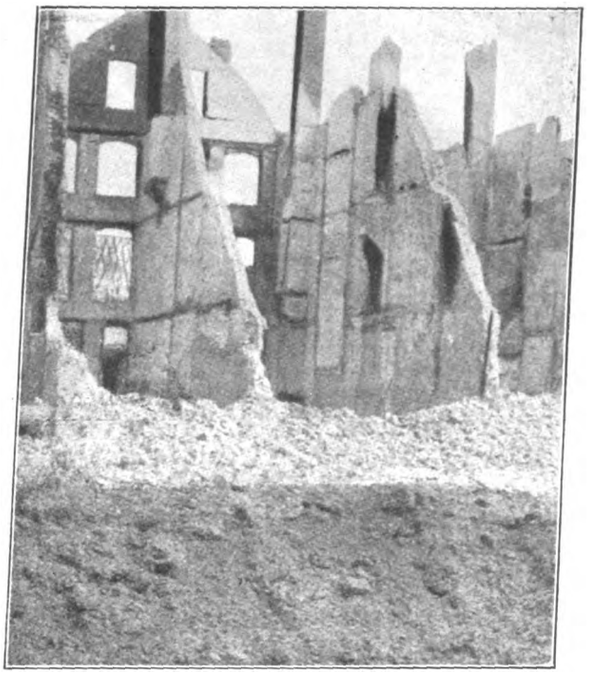
We learn from *Indian Engineering* that Ceylon, in common with other British possessions dependent upon Great Britain for supplies, is at present feeling the shortage of building work, galvanised piping, earthenware sanitary materials—particularly steelwork, galvanised work, earthenware sanitary goods, ornamental iron work, railings, patent floorings, paints, and glass. Cement is again increasing in price very rapidly, and there is reason to believe that shortly the home exporters will be compelled to ship cement in iron barrels instead of wooden ones, on account of the shortage of staves. Before the war 50 per cent. of the cement used in Ceylon came from Germany and a good deal also came from Belgium. Japanese cement, to some extent, has taken the place of the German article. However, the shortage and the increased freight charges are sending up the prices. Galvanised work, galvanised piping, &c., have increased in price by 50 per cent. since the outbreak of war, and to obtain steelwork is practically impossible.

A course of instruction has been arranged by the University of Sheffield in consultation with the Sheffield Master Builders' Association to meet the requirements of students who are working with the object of becoming master builders, or of occupying other important positions in building businesses. The course has been arranged on the lines of the works pupils' certificate course in engineering, the students attending the day courses of study at the University during the winter six months (October to March inclusive), and at the works during the summer six months (April to September inclusive). A works pupils' certificate (building section) is awarded to students who complete the three years' course and pass the necessary examinations. It is considered that by taking this course a student will acquire that knowledge of scientific and theoretical matters which will enable him to benefit more fully from his practical work during apprenticeship, and which will be of still greater value to him in later years. The next session begins on October 1, and the entrance examinations for candidates under 20 years of age, who have not passed an approved examination, will be held at 10 A.M. on September 20 and October 1.

The course of instruction includes in the first year: Applied mechanics—lectures and laboratory work; the elements of mathematics, descriptive geometry. Building construction—Lectures and drawing course. Carpentry and joinery—Workshop course.

In the second year: Elementary chemistry and the chemistry of building materials, practical mechanics and material testing, mathematics (special course). Building construction—Lectures and drawing course; theoretical construction, practical geometry, carpentry and joinery.

In the third year: Civil engineering, structural engineering, land surveying. Building construction—Lectures and drawing course; sanitation, carpentry and joinery.



ALL THAT REMAINS OF A LARGE HOUSE AT YPRES.
From a photograph by a member of *The Architect's* staff on active service.

ILLUSTRATIONS.

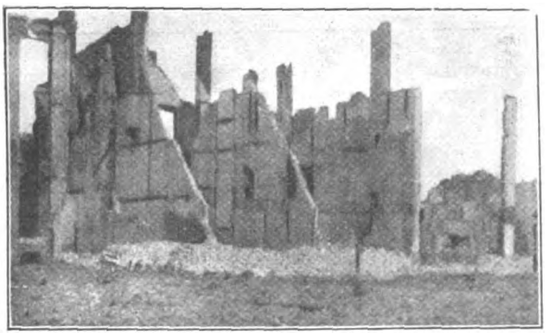
COTTAGES AT HATFIELD, WROTHAM AND CLANDON.

VARIOUS types of cottages are shown in the illustrations forming part of a long series of experimental cottage building carried out by Mr. Arnold Mitchell, F.R.I.B.A. In almost all cases the accommodation is that laid down as the minimum by the Departmental Committee on Rural Housing. In all cases the cost is kept severely down, those illustrated costing from £110 to £137 each.

Perhaps the most interesting of Mr. Mitchell's experiments is the pair of cottages built for the Portland Cement Combine in Messrs. Cubitt's yard at Gray's Inn Road, W.C. They are in concrete, roofs as well as walls, and cost £250 the pair to erect.

THE annual exhibition in connection with the Royal Glasgow Institute of the Fine Arts will be opened on Saturday, September 25, by the Lord Provost, and that day is also reserved for the private view. The receiving day for pictures was on the 23rd of last month. Varnishing day is September 22.

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GERMAN ALTERATIONS IN ARCHITECTURE AT YPRES, "KULTUR" STYLE.

From a photograph by a member of *The Architect's* staff on active service.

SIR CHARLES BARRY, R.A., 1795-1860.

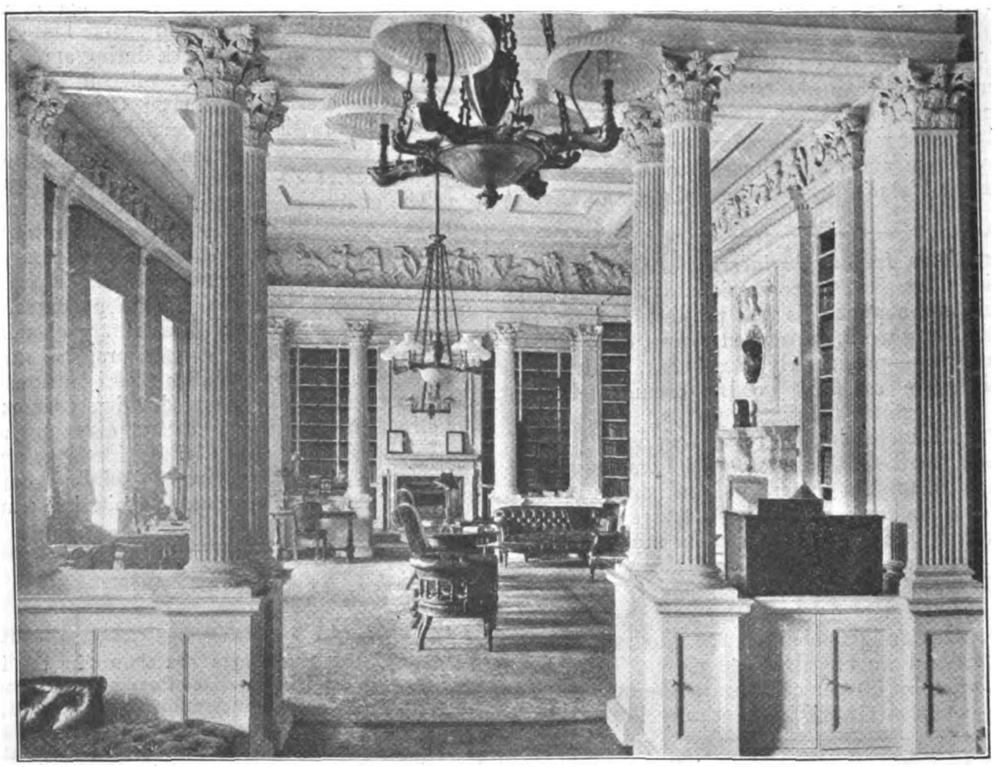
By ALBERT E. BULLOCK, A.R.I.B.A.

THE pendulum of opinion concerning the merit of this distinguished architect has, with very good reason, swung in his favour within recent years. The eulogy accorded an eminent man upon his decease is frequently "buried with his bones" and others arise to remove his laurels and defame his claim to renown. Our subject suffered severely in this respect, nor is the life of any man, having so distinguished a position in the public eye, fraught without its meed of pain and struggle. The pleasant paths of life free from strife and rancour are rarely experienced by those whose prowess brings them into the front rank of their profession. In other words, success is achieved upon the stepping stones of lessons learnt through failures.

retrace the steps in the early years of his student pilgrimage. Son of Walter Edward Barry, a stationer and Government contractor, young Charles was an orphan at ten years of age. His stepmother had his education commenced at Mr. Wright's Academy, Carron House, South Lambeth. He continued his training at Bedford and finally at Christ's Hospital. At fifteen he was articled to Messrs. Middleton & Bailey, surveyors, of Lambeth, until he became of age, exhibiting drawings and designs at the Royal Academy yearly from 1812.

His foreign travels commenced in his twenty-second year in company with Mr. Conduitt through France, Germany, and Florence to Rome, where Barry made the acquaintance of Mr. Eastlake, Mr. Kinnaird, and Professor Johnson, of Haileybury College. They went together to Naples, Pompeii, Bari, and Corfu. Within a year we find Barry at Athens still in the company of Mr. Johnson, with whom he appears to have visited Ægina, Cyclades, Delos, Smyrna, and Constantinople. Barry then received a commission of £200 per annum to accompany Mr. Baillie on a sketching tour through Palestine and Egypt, making copies of any drawings of which he required a record. Their course lay through Troad by way of Assos and Pergamos to Smyrna, where they made the acquaintance of Messrs. Godfrey and Wyse, with whom they travelled to Alexandria. Egypt was rather beyond the zone usually frequented by architects in these days and the journey was not without adventure, together with the discovery of many new treasures in art. Denderah, Esneh, Edfou, and Karnac were visited in turn. Assouan, Philæ, Thebes, Cairo, and Sinai were studied when in the line of march, and at the last mentioned place Barry became friendly with Mr. William Bankes, of Kingston Hall, for whom he sketched a restoration of the Roman Theatre at D'Jerash, exhibited at the Royal Academy in 1822.

Beyrout, Damascus, Palmyra, and Baalbec were taken in their order, at which latter place Barry conducted researches which became the subject of an essay published some thirty



THE LIBRARY.—TRAVELLERS' CLUB.

In his day Barry's name became as famous as that of Inigo Jones and Wren or Chambers and Soane had before him. His honours were as great, if not more extensive, than those possessed by any of his predecessors. He was a recipient of the Royal Gold Medal, a representative of seven foreign academies, besides receiving the grand medal of honour at the Paris Exhibition, a diamond snuffbox from the Emperor Nicholas at Rome, and was appointed a member of the Royal Commission of 1851.

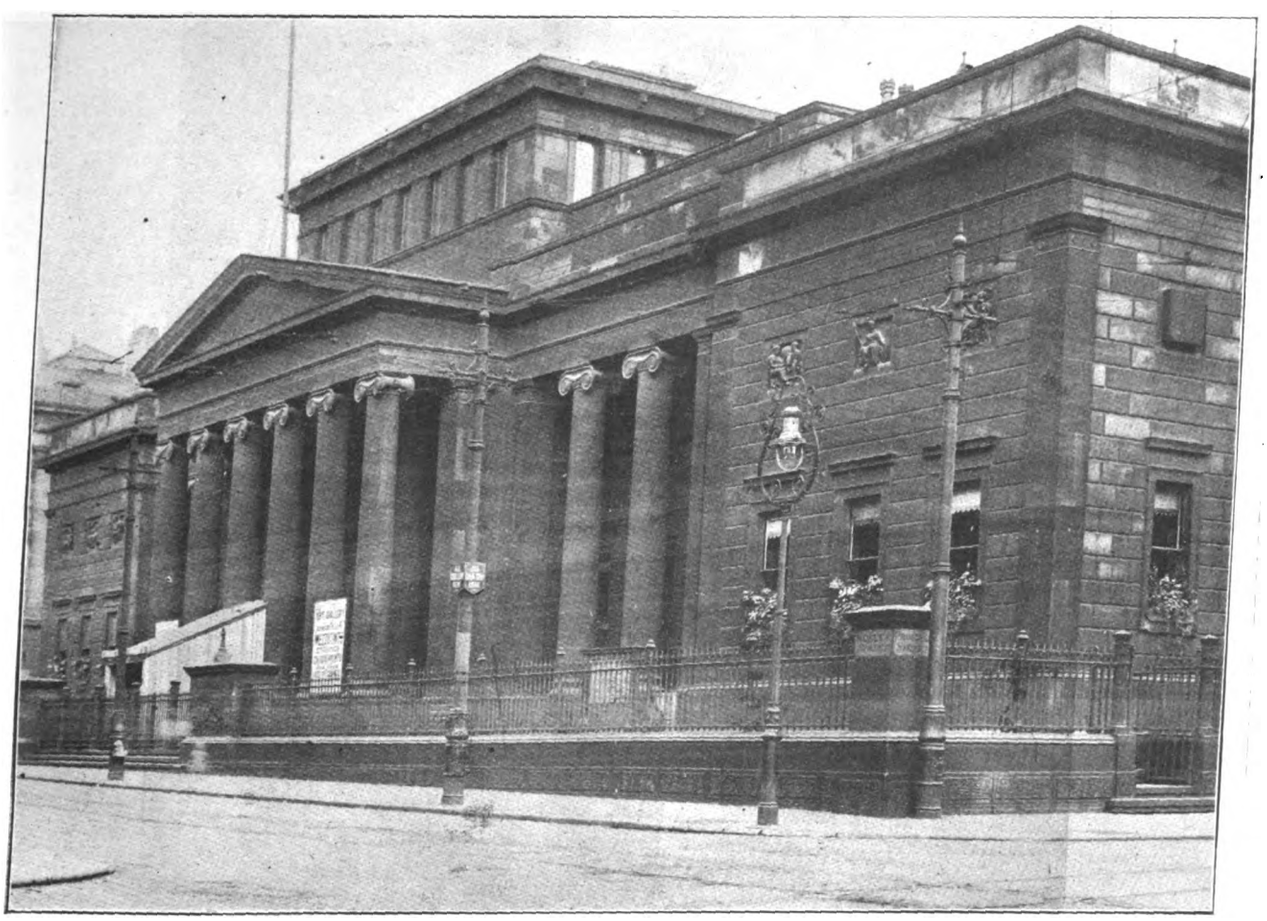
If we would criticise his works we must endeavour to

years later in the Architectural Publication Society's Dictionary. Mr. Baillie left Barry at Tripoli and allowed him to retain some 500 sketches. Most of these were unfortunately lost, but the original drawings made for Mr. Baillie were subsequently purchased from a descendant by Sir J. Wolfe Barry. These were recently kindly shown to the author, and exhibit a skill and accuracy of draughtsmanship, perspective, and finish which is rarely seen in the drawings of English students of these days, whether of architectural or landscape subjects. Barry showed himself

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to be master of both his subject and pencil; some of his coloured views give a wonderful atmospheric effect of artistic completeness. The return journey was by way of Cyprus, Boudroon, Yerunda, Patmos, Smyrna, and Ephesus, when he set sail for Malta and Sicily with Messrs. Godfrey and Wyse. Plans and studies of the principal ancient monuments at Syracuse, Taormina, and Ephesus occupied his attention until the end of the year, when he went to Rome in January 1820, where he first met Mr. J. L. Wolffe, a pupil of Joseph Gwilt's, who proved an inseparable life companion. They studied together in Rome, Florence, Vicenza, Venice, and Verona "in the same quarry as Michael Angelo, Vignola, Peruzzi, and Palladio," as Sir William Chambers advised Soane to do.

It will be gathered from the foregoing that Barry covered an extensive area in the three years of his travels, visiting every place of note in those regions, but he had confined himself largely to Classic works with the Byzantine and Egyptian styles of the towns he visited. Upon his second visit to Milan he took careful sketches of Gothic work, and



MANCHESTER ART GALLERY.

in Germany studied the decorations at the Royal Chapel at Munich, the Dom at Berlin and like places.

Towards the last period of his journey he doubtless studied the treatment of Italian gardens, which he was largely instrumental in introducing into England. Whereas Chambers was a keen student of French decoration, inculcating the spirit of the styles into his plasterwork, Barry sought to portray the actual effect of marble and gilding into the mansions he altered or erected for the nobility during his career. Such gardens as those of the Vatican and Bolboli Palaces served as models for his treatment of the lay out of the grounds of Trentham, Harewood, and Shrublands Park, while the decorations of Versailles and other French palaces provided *motif* for his interior treatments of Stafford House, Lord Tankerville's Villa, and like places.

His club houses are planned upon the basis of a covered Italian cortile where such a method was possible, while exteriors appear to be largely influenced by such palaces as the Strozzi and Farnese at Florence, the Villa Cancellaria and Palazzo dei Rei d'Inghilterra at Rome. Barry favoured the works of Sansovino at Venice and Palladio at Vicenza. The Palazzo Pandolfini, Florence, inspired by Raffaello da Urbino, is said to have suggested to Barry his treatment for the Travellers' Club, although there are really very few points in common, while he endeavoured to reproduce the ceiling of Santa Maria Maggiore in the House of Lords.

Indeed, by way of comparison, there is nothing more remarkable than the similarity exhibited between the plan of the Palazzo Strozzi and that of either Bridgewater House or Halifax Town Hall, excepting the necessary adaptations to modern requirements.

By July 1822 Barry had returned to England, taking in the following months a house, No. 39 Ely Place, Holborn, where he commenced practice. Before the turn of the year he added a further responsibility in breaking his long engagement with Miss Sarah Rowsell.

There is a curious irony about the fact that the earliest successes of Barry were Gothic churches, a style in which he had little sympathy. Following upon an extensive tour of Classic research he must have found his task uncongenial in the extreme, while his success in regard to the Royal Institute of Fine Arts, Manchester, doubtless gave him heart again and infinite gratification. There is no denying that Barry was at his best in works of Classic foundation for design; his productions breathe the spirit of the style, and yet he was destined to follow both courses to an almost equal extent.

In 1822 he erected the churches at Prestwich and St. Matthew's, Campfield, Manchester, in which the latter is vaulted with a repeated moulded rib making a pointed arch at regular intervals to the roof; the springing is supported upon an Early English column with floriated cap and shaft of Purbeck marble finish in the galleries. Most of Barry's ceilings, ribs, and ornament are of plaster painted to represent the particular material funds would permit him to introduce. Such was the common deceit of these times since "necessity was the mother of invention."

The Unitarian Chapel in Upper Brook Street, Chorlton-upon-Medlock, erected in 1836, is said to have been "influenced" by Pugin, who was assisting Barry at the time. At Buila Hill, Salford, Barry built a mansion for Sir Thomas Potter in an estate of 32 acres, which the Corporation purchased a few years back for £20,000 to convert to public use.

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Through the courtesy of the Corporation the writer was recently permitted to see the survey plans. These show a square type of plan with extensive outhouses, stables, &c., of very solid nature. Barry followed with the church of St. Martin's, Outwich (which was destroyed in 1877, the monuments being removed to St. Helen's Church), the Ringley Chapel, and in open competition won St. Peter's, Brighton, erected in 1824. This is the best example of a modern Perpendicular type of church which I have seen, the interior being very similar to his churches at Cloudesley Square, Islington, and Hurstpierpoint Church, Sussex. The photographs are by Mr. Fry, of Brighton. Saffron Hill Chapel and schools (then called St. Andrew's Church and afterwards St. Peter's) is of a style with several other churches between Messrs. Soane, Nash, and Smirke resulted in the erection by Sir John Soane of three churches—Holy Trinity, St. Marylebone; St. Peter's, Walworth; and St. John's, Waterloo Road.

This phase of architecture was the direct outcome of the conditions which stipulated "Grecian Doric with Cupola" or "Roman of the Tuscan Order," which rendered pitfalls for the uninitiated. In later reports "Gothic with Tower and Spire" indicates a rise in influence of the rival school. It was to this school that Barry piped his lay.

Barry's success at Brighton brought him to the notice of Lord Egremont, who laid the first stone of the central portion of the Sussex County Hospital. Barry became a frequent visitor at Petworth House, where he carried out



INTERIOR OF HALL.—MANCHESTER ART GALLERY.

at Islington—*i.e.*, St. Paul's, Balls Pond, consecrated in 1828; Holy Trinity Church, Cloudesley Square; and St. John the Evangelist, Upper Holloway, together with the adjacent schools. These last three churches were erected for the Rev. Daniel Wilson through the introduction of Sir John Soane.

The extraordinary activity in church building at this time found its origin in an Act of Parliament passed in 1818, which authorised an expenditure of one million pounds of public funds in the erection of ecclesiastical buildings, a Royal Commission being formed to report on and cause additional churches to be erected throughout London and the provinces. In the primary stages a limited competition

many alterations and added a steeple to the parish church. This connection opened up a new sphere of activity for our subject, who erected an Italian villa (now the Xaverian College) for Mr. Attree, the solicitor, who interested himself in the laying-out of Queen's Park, Brighton. The satisfactory result of this latter induced the Duke of Sutherland to commission Barry to plan his estate at Trentham. Barry made alterations and additions to other chapels and residences at Brighton, including Brunswick Chapel for Dr. Everard, in the Italian style, the chancel and transept being added later by his son; and Hurstpierpoint Church, Sussex, in style of the Perpendicular period.

Among unexecuted designs may be mentioned the

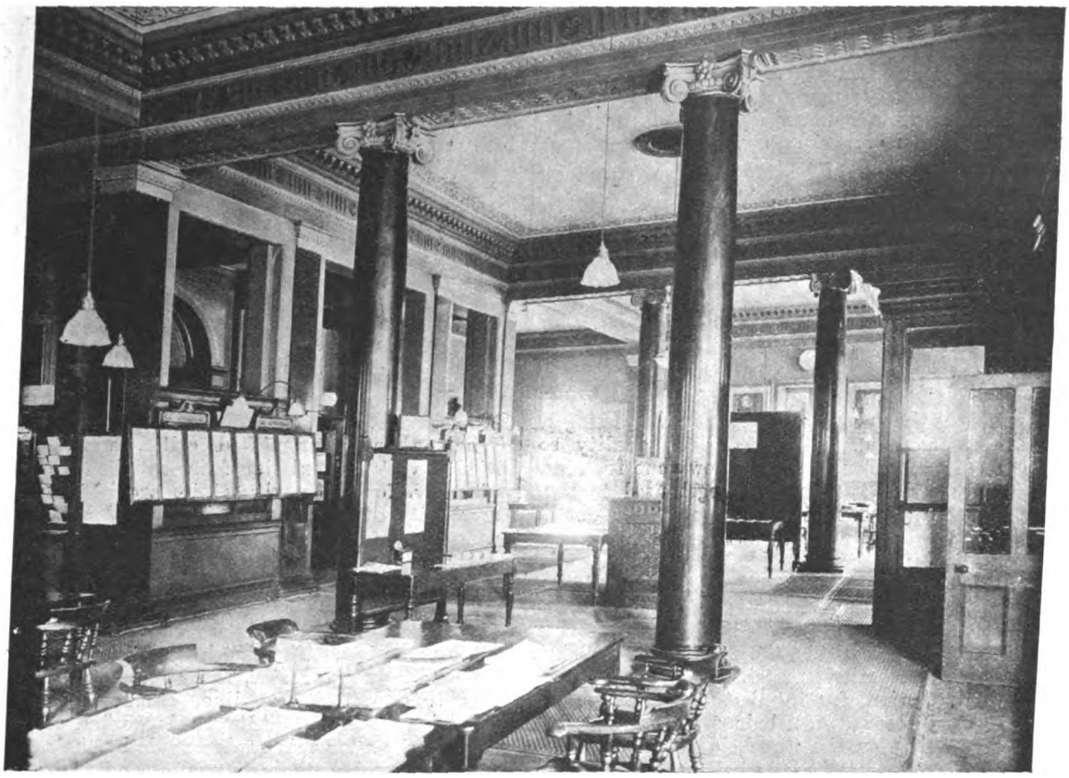
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National Scotch Church and churches at Kensington, Streatham, and Highgate, while he practically rebuilt Stoke Newington Church in the Perpendicular style in 1827, which suffered alteration to Early Decorated at the hands of Sir Gilbert Scott in 1858. The presence of the monument to the wife of Sir Thomas Sutton of the Charterhouse tends to show that much of the original fabric is of early date.

That Barry's Gothic was not strong in his early efforts is an opinion that has received general acceptation, but an artist of his extraordinary versatility was unlikely to make a stumbling-block of this kind, while his churches are eminently suitable to their purpose, comparing favourably with contemporary work, and having wide processional

the Leeds Exchange, the Law Institution, a new concert room at Manchester, additions to the Pitt Press, Cambridge, and the Birmingham Town Hall, did not damp his ardour. In 1829 he won the limited competition for the Travellers' Club House, and built the Imperial Insurance Offices opposite in the following year, while the Reform Club was erected from his designs in 1837.

The Travellers' Club House was the subject of a monograph by W. H. Leeds, who gives careful drawings of all the principal features, with details. It is a little unfortunate that the façade is in stucco; the interior, however, is very interestingly planned. The vaulted entrance hall is dignified, giving the atmosphere of clubland, from which a passage



INTERIOR OF NEWS ROOM.—MANCHESTER ATHENÆUM.

aisles, often nearly 12 feet—even if he was not as true to period as was his illustrious successor, Sir Gilbert Scott.

Barry's association with Augustus Northmore Welby Pugin dates from 1834, when Barry was erecting the King Edward VI.'s Grammar School at Birmingham. Pugin was then twenty-two yeas of age, and had already suffered a somewhat chequered career. His father was a French Huguenot, and young Pugin was reared in an atmosphere of mediæval detail.

It is recorded that when Pugin was wrecked at Leith during one of his trading tours from Holland he made the acquaintance of an Edinburgh architect, Gillespie Graham, who persuaded him to abandon his roving life for architecture. When the famous competition was announced, in June 1835, for a new House of Parliament, both Graham and Barry secured the services of Pugin, at £300 and £400 respectively, while this "50 horse-power of creation" sent an additional design for himself. Barry's excellent plan and treatment of skyline were points which attracted the assessors, and of the four premiated designs No. 64 took the first place.

It is necessary to retrace our steps a little in order to review the intermediate events. Barry was essentially an eclectic, but not stubornly so; his eclectism savoured of an astuteness through his knowledge of the men of his day. He took a leaf out of Soane's book in submitting a fresh design for the addition to King's College, Cambridge, but was more successful at Manchester with the Royal Institute of Fine Arts, which has a hexastyle portico of the Greek Ionic order and quite a severe fenestrated treatment to the flank walls. In 1836 he erected the Athenæum on the rear site, the general character of which is not unlike the Reform Club. A series of reverses in respect of competitions for

gives access to a large reception-room fronting upon the garden at the rear. On the first floor are the library—a fine apartment with Pan-Athenaic frieze—and the dining-room. The library occupies the whole of the garden front, and is symmetrically arranged, with sub-divisions each end, treated with columns and pilasters.



MUSEUM, BUILE HILL PARK, PENDLETON.

Barry invariably practised the reduction of his full-size details to the scale of his complete drawings, which doubtless accounts for the "tournure" effect his proportions usually give.

(To be concluded.)

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ITALIAN VILLAS: THEIR PLACE AND FUNCTION IN LANDSCAPE ARCHITECTURE.

MANY years ago the writer (says Mr. Samuel Parsons in the *American Architect*) found himself in Florence, one hot July day, passing in a carriage up and up a winding road bordering the grounds of a celebrated palace and gardens. Soon the carriage stopped at a door set in a plain stone wall, and through it one entered at once the palace. It was not exactly a grand palace, but it was a real palace all the same, and was full of Renaissance associations, weird old legends, and plenty of old-time grace and noble proportions. Out on the balcony on either side of a great overshadowing specimen of a magnolia tree (*Grandiflora* or *Fœtida*) growing up through the floor of the balcony, the eye immediately embraced one of the many lovely valley scenes of Tuscany, one of those scenes that attract with irresistible fascination in the backgrounds of the pictures of the great masters, Titian, Leonardo, Raphael, Perugino, and a host of others. The Italian painter loved his countryside, and had a faculty for discovering the genius of the place which he idealised in his pictures, and, above all, in his villas that stand to-day even in their ruins as unique creations of garden art. He felt in the most intimate way the spirit of Nature itself, and gave full play to his imagination in his rich and sumptuous gardens. Alas! these visions of loveliness recalling the wonderful magic of those days are now too frequently marred by the bare earth of tennis courts and stiff, clipped privet hedges, sure token of the presence of up-to-date ideas in landscape gardening. One sees these landscape gardening efforts all over Italy applied with a blighting effect on the inherent charm of the fifteenth-century villa. Try as the modern restorer may, he manages, with all his skill, somehow to abstract the quality so endeared in examples of an exquisite art now gone for ever. Doubtless the explanation is that, as Hegel used to say, "A man can no more get out of his own age than out of his own skin."

Concerning the principles that guided the great Renaissance garden-maker, Sir George Sitwell writes: "It is not easy to speak, for it was in poetry, in imagination, that he reigned supreme, and inspiration is the breath of the muses, which may not be brought within the rules of art. Their first thought was for æsthetic impression on the individual, for sentiment and emotion, for intellectual suggestion, for chords struck upon those vague, nebulous, spectral feelings that are ever trembling on the threshold of consciousness. To them the garden seemed to be only half the problem; the other half was that blundering, ghost-haunted miracle, the human mind. Thus they learned the value of striking contrast; of sudden and thrilling surprise; of close confinement as a prelude to boundless freedom, of scorching sun as a prelude to welcome shade or cooling river, of monotony, even of ugliness, set for a foil to enchanting beauty, as a discord is used in music, as the lowered tone in a landscape brings out the fires of sunset. . . . Their work, like all great artists', is full of mystery, of haunting beauty, of magic which all must feel, but few can understand."

In other words, great artists in landscape gardening, as we shall see later on, whether they are dealing with Italian villas, Japanese gardens, or American or English parks, are actuated in their designs by the same trained artistic instincts—I cannot even use the term principles, so much are these results the creation of the imagination, of the genius of the man of a special time and country. A cause for the profound admiration generally displayed, and justly so, for the best forms of Italian villas may doubtless be found in the fact that the greatest artists of all time, such men as Raphael and Michael Angelo, exerted their mighty genius in designing the villas of the age, modelling their ornaments, painting their celings and walls, and laying out their gardens. These men, owing to their environment and the elements of the spirit of the age, were perhaps better fitted than any other men of whom we read to design the supremely lovely garden. It should be remembered also that, although we owe much to Nature, we owe more to the art, based on Nature, employed by these divine masters in all its luxuriant and inspiring vitality. They knew how to exercise an "art that has the power of selection, accentuation, grouping, and the removal of defects or superfluities, to intensify and surpass the beauty of Nature, thus reaching the ideal." This power, being higher than the natural law, is a kind of witchcraft. In the creation of such a scene there is generally found the quality "of appropriateness, diversity in unity, proportion, symmetry or balance, orderly progression," but in all the best of this Renaissance work there is the hall mark of genius which refuses to be bound down by rules. For instance, "at Villa d'Este the designer has twisted the great descent of his central alley some yards to the left, caring little that the squalid houses of the town should encroach upon the corner of his garden, and even across its middle line" (Sir George Sitwell). In other words, the Renaissance had burst the bonds of classic and mediæval ages and dared to think for itself and break whatever laws it chose. It has been well said: "Symmetry, which gives a sense of rest, will be the law of the garden, the human mind being prejudiced in favour of simplicity and rhythmic recurrence, but symmetry too exact is a characteristic of dead rather than living things." There is also, over and above all rules of art, "a natural emotion or passion of ideality, which craves to be satisfied, and every man, genius or plain human being, in his own way, must seek this ideal in church or library, in art or music or literature," in Italian villa or English or German park. In order to catch some faint glimpse of how a great artist designed a garden, a few minutes may be well spent in studying a remarkable book entitled "Architecture of Raphael," by Theodore Hoffman, one volume of which is entirely devoted to Villa Madama, near Rome. Every available record of the inception and partial execution of this villa is given. The project was undertaken by Raphael and his colleagues about 1516 A.D. for Cardinal Giuliano de Medici, afterwards Pope Clement VII. It was nearly destroyed by the troops of Cardinal Collona ten years later, and since then it apparently has been left as a relic of a design which was intended to surpass all similar constructions. Certainly from that day to this there has been no villa designed with such nobility and excellence "of contours, masses of colour, line and light, rhythm, balance and the contrasts that emphasise harmony." Mrs. Edith Wharton, a distinguished critic, writes thus of Villa Madama: "The existing fragment, however, is well worthy of study, for the purity of its architecture and the broad simplicity of its plan are in marked contrast to the complicated designs and overcharged details of some of the later Roman gardens."

There was a directness in the work of Raphael and his school which may have caused them to make few sketches before and during their work, for they were artisans as well as artists. The sketch of Madama that is attributed to Raphael, the master, is a simple study, but it has great beauty and purity of line, balance and proportion, and boldness of design. Afterwards we find several more elaborate designs for this garden made by the architect brothers, Battista and Antonio Sangallo, and a Francisco Sangallo, probably a relative, also by Giulio Romano and John da Udine and other painters and sculptors who worked on Madama.

To prove that this villa also shows the Italian love of water effects, one sees to-day a long terrace with a tank to receive a stream that comes from the neighbouring hill, Monte Mario. There are niches for statues in the upper retaining wall, and below is a series of grottoes and a long basin. These features, including a noble loggia, are all that now exist of the huge villa originally projected, the plan of which has been reconstituted by Guymuller. This plan is also shown in perspective, probably by the same hand.

Raphael's villa had a specially superb setting, looking far away down the valley between the hills and resting easily on its terraces against the hillside. Its proportions would have been perfect, if we can judge from the records and the ruins. It must have been intended to command in the most perfect manner the very heart of the charming neighbourhood, dropping from level to level in the way that the Italian likes to design his villas. One wonders what Raphael saw in his visions of the final development of this villa. The creation of serene and perfect beauty was the special gift that had been vouchsafed this great master. The composition of his pictures was marvellously perfect, and no less perfect, doubtless, would have been this Villa Madama, intended to be the triumphant effort of his genius. Even in the aspect of its ruin it is claimed that its comparatively undeveloped charm renders it in the eyes of many the most distinguished villa in Italy, not for grandeur or display, but for sheer beauty of composition and native fitness to the scenery of the region.

We might well turn, however, from the exclusive consideration of Italian villas and their supreme beauty and seek to obtain a wider survey of the subject. Many lovers of Italian gardens become so obsessed with their love for these beauty spots of Italy that they lose their sense of proportion and fitness, and, carried away by the great mass of the best kind of literature devoted to Italian gardens,

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vouchsafe very little attention to other phases or forms of gardens and parks in other times and countries. They have one idea, and that crystallises immovably in Italian gardens, forgetting that the evolution of gardens especially is dynamic and not static, the result of the development of growing things. With distorted vision, or no vision at all for any other form of landscape gardening, they forget or have never looked with seeing eyes on analogous effects in Germany, America, England, France, Japan, and even Russia. They speak with contempt of the so-called "natural style," forgetting that except during the reaction from Le Notre in the middle part of the eighteenth century no landscape gardener of real importance ever advocated "copying Nature." Nature offers inspiration and trains the imagination to efforts made on lines analogous to her own; but copy Nature, no; no man of intelligence and training ever thinks of it nowadays, any more than Raphael did. In spite of all this, we read the following lines by an intelligent writer of the present day. Writing of so-called "natural" gardens, though really the term carries little or no meaning, the following words are used: "Surely, it is quite as unnatural to slavishly copy Nature as to frankly follow a certain artistic design. Early in the eighteenth century 'Capability Brown' was busy designing feigned steeples for non-existent churches in order that the view might become more attractive. A cascade was considered so unnatural that whenever a meandering stream changed its level the pretty fall was masked by a clump of trees." Another writer says: "But as under Louis XIV. the garden had encroached upon the park, so now the park swept over the garden, bringing the 'one unending undulating sweep' of the bare English lawn up to the very windows of the house. With the peace of 1762, the new fashion spread like a plague over Europe, destroying everywhere the harmonious setting of hall and palace and castle which the care and love of bygone centuries had hallowed." Does any really sane man commit such sins against good taste in these days; and, if he does, do not his neighbours all laugh at him? Doubtless, lingering traditions of evil things in landscape gardening float down to us through the ages, and the ignorant commit many solecisms, but the question is, Do properly accredited practitioners of the art of landscape architecture endorse any such notions? I claim they do not, and I claim, moreover, that their designs are as carefully studied and as intentionally artistic as those of the Italian villas. True, they may not be all good designs, but neither are all the Italian villas artistically good.

To give a further illustration, no one, I think, who has studied the subject will deny that the plan of Central Park, New York, designed by Olmsted & Vaux, and that of the Park at Muskau, Germany, the work of Prince Puckler, are as genuine artistic productions as those of any villa in Italy.

There is much truth in the criticism which deplores the frequent lack of any attempt at artistic design. A person owning a country place goes to Europe, and on his return seeks to reproduce something he has seen abroad, without regard for its fitness to the genius of his place. He still has a habit of buying statues or pieces of ruins and setting them up wherever his fancy may suggest. He seldom thinks of their suitability for any special artistic design, or the good or bad relation they may have to other parts of his lawn or park. Unity of design is always desirable, but no more necessary to the garden than to the park. The garden is nearer the house, and more of a direct projection of the actual dwelling, but its proper artistic relations to the general scheme are no different in any way from that of the lawn.

Unfortunately, it must be confessed that many places have no artistic scheme whatever, and to them may be well applied the following words of Hegel: "The affectation of want of purpose and contrivance, the pretence of disorder, of natural primeval solitude in an artificial scene which has been deliberately planned for human enjoyment and social intercourse is one of the primary discords which no ingenuity can soften or conceal, for the jarring note will be heard above all the music of the landscape."

To sum up, the art of landscape gardening is basic in its essential qualities. All landscape gardeners of the right type equally, though generally, and naturally, with less success than Raphael in the Villa Madama, alike seek to exercise an art that has the power of "selection, accentuation, grouping, and the removal of defects or superfluities, to itensify and surpass the beauty of Nature thus reaching the Ideal."

Two of the greatest exponents of the art of landscape architecture were Calvert Vaux and Prince Puckler von Muskau. The dictum of Calvert Vaux is that "an imitation of Nature, however successful, is not art; and the purpose to imitate Nature, or to produce an effect which shall seem to be natural, and therefore interesting, is not sufficient for success in the art of lawn planting, which depends on a happy combination of many circumstances that Nature unassisted is not likely to bring about." Charles Eliot, the best American critic of landscape gardening, writes that Prince Puckler "would not force upon his native landscape any foreign type of beauty; on the contrary, his aim was the transfiguration, the idealisation of such beauty as was indigenous."

Millet wrote: "Nothing is of account but the fundamental. I try to make things seem not put together by chance, and for this one occasion, but so that they have an indispensable and compulsory connection." Again Millet said: "We ought to be steeped in Nature, saturated with her, and careful to only think the thoughts that she inspires. All you need is intelligence and a great desire. If you abandon yourself to her service she will give you of her store." Plotinus enunciates the truth that the arts do not simply imitate the visible, but go back to the creative principle from which Nature also derives its form. Dean Inge writes: "Perhaps beauty has an ethereal and evasive quality which belongs only to itself." "It is," says Plotinus, "the light that plays over the symmetry of things rather than the symmetry itself."

William Watson has thus finely expressed an analogous idea:—

> Forget not, brother singer, that though Prose
> Can never be too truthful or too wise,
> Song is not truth nor wisdom, but the rose
> Upon truth's lips, the light in wisdom's eyes.

NOTES FROM PARIS.

THE order for the sequestration of the Astoria Hotel, on the Champs Elysées, Paris, has at last been made by the French Government. The Minister of the Interior has been asked for reasons why M. Geissler, a German subject, late manager of the Société des Grands Hotels de l'Etoile, at this moment incarcerated in the Santé Prison, did not comply with the decision of the Courts ordering him to demolish the top floors of the hotel, the Astoria, to meet the requirements of the regulations concerning the heights of buildings in the proximity of the Place de l'Etoile.

It may be remembered that a few years ago the Astoria Hotel, belonging to M. Jellineck, a rich Austro-Hungarian, whose many rich properties in France have now been sequestered, was transformed into a kind of sky-scraper, by the addition of a couple of extra floors, designed by a well-known Parisian architect of good taste, and dominated by its high roofs the Place de l'Etoile, with the effect of spoiling the charming and regular proportions of the older buildings surrounding the Arc de Triomphe. The matter was brought to the attention of the authorities, and the Courts decided that these upper floors should be modified so as to be in proportion with the æsthetic proportions of the Place de l'Etoile. An appeal was made against this decision, and apparently the matter was allowed to take the slow course of appeal cases. Now that the building has been sequestrated, the work of demolishing the high top storeys will be commenced as soon as building work in Paris allows.

It is a fact that at the outbreak of the war a complete and powerful wireless installation was discovered at the top of this hotel, the manager stating that the installation had been arranged for the amusement of his hotel guests.

As the hotel roofs easily dominate from this high quarter of Paris the Eiffel Tower, and practically the whole of Paris, it might be asked whether the construction of these extra floors, and the appeal made against the decision, which would necessarily be a slow one, was not of malice aforethought.

It can be said that since the outbreak of the war hardly a brick has been placed on another at Paris, and certainly not a stone, for all building work, with the exception of small necessary maintenance, absolutely ceased from the first day of the mobilisation. Our architect friends and builders of London can hardly realise the effect of the war on their professions at Paris. The younger architects were called to the Front, and those builders not called up for active service found themselves deprived of their employees and workmen of military age. Nearly all other firms connected with the building trades found themselves in the same position; buildings, therefore, large and small, were

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promptly abandoned, and these buildings until quite lately have remained in the same state as in August of last year. Even now grass and weeds are fast growing in the soil of the abandoned foundations. Besides the question of the difficulties of labour and materials, came that of payments, all building money becoming at once locked up.

During the past few weeks, however, the Army organisation has afforded greater facilities for obtaining a certain proportion of labour, and certain firms are under some difficulties continuing the work commenced before the war. Plaster, lime, and cement, requiring labour for their extraction and coal for their manufacture, have very greatly increased in cost. Some stone for walling is obtainable, but the builder has to fetch it himself from the Seine side, where it is delivered from barges. Metals have nearly doubled in price, steel is difficult, and boilers and pipes for heating are almost out of the question just now. And there is little hope that prices for building materials will decrease shortly, or even at the termination of the war. On the contrary, a constant increase is foreseen, and after the war the quantity of work will force the builders to maintain their prices at a very high level.

One of the busiest "chantiers" at Paris, and perhaps the busiest, is that in the rue de Mogador, where the Société des Music Halls Parisiens (Mr. Alfred Butt, director) is building a new music hall to be managed on the lines of their other music hall near the Place de la Republique. The work has been in hand some three months now, and is interesting as showing the enterprise of the Société in erecting a large building in Paris under the present circumstances, as also for the excellent moral effect such building work has on the Parisian passer-by.

The architect is Mr. Bertie Crewe, of London, represented at Paris by Mr. Vye-Parminter, architect, of Paris. The directors wished to entrust as much as possible of the work to Parisian firms, in view of the employment of such labour as would be useful to the non-mobilised workmen, and with the exception of the steel-work, the joinery, and the terra-cotta front, each not easy to deal with at Paris under present circumstances, such has been arranged under a general contract entrusted to a London building contractor.

TECHNICAL EDUCATION AND BUILDING.

DURING the fortnight ending on Saturday, August 14 last, a most interesting scheme for the instruction of teachers of building subjects was carried through at the Bournemouth Municipal College.

The scheme consisted of a full-time vacation course extending over the period mentioned, and was conducted by the Board of Education, acting through Mr. Hugh Davies, His Majesty's Inspector of Building Schools.

The accommodation was limited to thirty students, the teachers attending being selected from a list of applicants representative of this section of technical instruction throughout the country.

Viewed as a whole, the holding of such a course has a special significance at this stage in our national history, and the movement has undoubtedly received a great stimulus from the desire expressed in recent days, both in and out of Parliament, to set our house in order in this as well as in other matters.

In detail the course as conducted at Bournemouth presents many points of interest. Instead of attempting to instruct the teacher in matters of which he ought to possess a fair knowledge, the course was so planned that the emphasis was placed upon the selection and presentation of suitable subject-matter to the classes dealt with, and also upon the necessity for close correlation of the work in the various classes.

The importance of the grouped course method of dealing with technical education, as contrasted with the old method of single-subject teaching, was very thoroughly dealt with throughout the course. To realise the need for this change, one must recall the frequent ineffectiveness of technical instruction in the past, which has largely arisen out of this isolation of single subjects, from the lack of insistence upon the necessity for a preparatory training, and for classes ancillary to the central subject of the students' study. In building subjects this weakness has been particularly apparent, hence it has been very gratifying to note the close correlation, both in spirit and in subject matter, which the lecturers in charge of this course were able to maintain, and which admittedly constituted a model of what is possible in every technical school throughout the country.

The particular section of work selected for treatment at this, the first school of its kind, was the establishment of classes suitable for a grouped course for building students in the first year of their instruction in a technical school. The subjects selected were: Building construction and drawing, building geometry and mathematics, and building science.

The class in building construction and drawing was conducted by Mr. Walter R. Jaggard, F.R.I.B.A., lecturer in building construction at the Northern Polytechnic Institute, London. As the central feature of such a course this class was of special importance, and, owing to the definite allocation of some of the work until recently included under the head of Building Construction to one or other of the allied classes, the lecturer was enabled to suggest a model syllabus for such a class, dealing with the subject in a much more thorough manner than has yet been possible at this stage. While the fundamental rules pertaining to the trades of the bricklayer, mason, carpenter and joiner were clearly outlined, the advantage of the use of correctly made models for teaching purposes was insisted upon, and particular emphasis was laid upon the necessity for rapid and clear drawing, both in freehand and by the ordinary orthogonal methods, as the practical means by which the designer may convey his ideas to the craftsman, and through him to the actual completion of the building. Not only as a fascinating study in itself, the study of architecture and architectural history was commended to the teacher, but also as a means of widening and deepening his sense of proportion and good taste, and thus, through him, inculcating in his students a finer perception of the dignity and beauty of building.

The class in geometry and mathematics was conducted by Mr. F. E. Drury, F.I.S.E., M.C.I., Head of the Department of Building and Civil Engineering at the Royal Technical Institute, Salford. The interest in this class centred in the fact that it was probably the first authoritative attempt to devise a scheme of instruction in this subject specially suitable for building students. The lecturer certainly used his opportunity to the full, and his scheme for this, the earliest, stage in the work, and the original manner of presentation, was most interesting and attractive. The necessity for a thorough preparation at this stage was recognised, while a close association with building problems and building terms throughout was fully established.

The class in building science was conducted by Mr. J. Leask Manson, B.Sc. Eng. (Lond.), M.R.S.I., A.M.C.I., Head of the Building Trades Department at the Leicester Municipal Technical School. This is a subject of quite recent introduction, and its inclusion in a course of this character marks what is certainly an interesting and important stage in the development of the subject. Quite a wide field was covered, and the class was conducted as an experimental one throughout, although many simple building problems were dealt with and the need for close association with building emphasised fully. The chief object at this early stage was the preparation of the student, so that his knowledge and training might be sufficient to enable him to deal fully with several sections of building science, some of which have so far received very cursory treatment in the schools.

In connection with this class, one problem set for solution during the course was the planning and equipment of a laboratory specially set aside for the use of students of building science; some very interesting schemes were submitted, and it was clear that this is a method of dealing with many building problems which has come to stay, and which the rapid development of new and more scientific methods of construction has made a necessity.

The course just completed has evidently proved highly satisfactory to all concerned, and such success should pave the way for wide and far-reaching developments in the future in this important branch of technical instruction. That there is need for it, all who are acquainted with our technical schools will agree, and there is no doubt that this active and progressive policy of the Board of Education will receive the heartiest support of all well-wishers of the building industry of this country.

THE Serbian Government has presented to the Victoria and Albert Museum and to the British public the marble torso of Strahinic Ban, by Ivan Mestrovic, in proof of their appreciation of the interest shown in the recent exhibition of his work. The torso is on view in the Central Hall of the Museum; the remainder of the exhibition is now closed.

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QUEEN CHARLTON.

HISTORIC SOMERSET MANOR HOUSE.

THE old-world characteristics of Queen Charlton, near Keynsham and Bristol, blend harmoniously with its ancient Norman church and historic old manor house, and form not only a pleasing picture, but afford antiquarian and architectural studies into the mysteries of its multifarious styles, fantastic carvings, and approximate age. At one time in its long history Queen Charlton was a place of considerably more importance than it enjoys at the present time. In contemplating the quaint dwellings, the stately cross on the green, which has been renovated and furnished with a modern shaft, there are reminiscences which stand out very distinctly, whilst the natural scenery around must not be overlooked. Traversing the road leading either from Keynsham, Whitchurch, Saltford, or Burnett (says the *Bristol Times*) to Queen Charlton, pleasant views, green meadows, undulating sweeps of hill and dale and rustic haunts meet the eye. In Queen Charlton the successive abbots of the neighbouring Abbey of Keynsham, to whom the parish belonged, were once familiar figures, and after their home was laid desolate, probably Queen Catherine Parr—the sixth wife of Henry VIII., who was fortunate enough to survive him, and subsequently married to Sir Thomas Seymour, brother of the Lord Protector, and to whom the manor was granted, from which circumstance it adopted the prefix "Queen"—was not an infrequent visitor at the manor house. Through Queen Charlton the high and mighty Queen Elizabeth passed with her courtiers and attendants on her way either to or from Bristol in the year 1573. Whether she stopped at the manor house is not quite certain, but very probably she did, for on the occasion of the visit she granted to the place a charter for a fair to be held annually on July 20. And then there came to Queen Charlton in the following year a number of the wealthy citizens of Bristol, who took up their temporary abode there in order to escape the plague at that time raging in the city, and they had houses fitted up for their accommodation in the parish until the plague had ceased.

At the Conquest Queen Charlton belonged to the manor of Keynsham, and consequently it is not mentioned in the Domesday Survey as a separate manor. In about the year 1166 the Abbey of Black Canons was founded at Keynsham by William Earl of Gloucester in fulfilment of a dying request by his son Robert. The canons adopted the discipline of St. Austin and St. Victor, and came under the order of St. Austin. On January 23, 1539, the Abbey of Keynsham surrendered to the King. At that time there was the abbot, with ten monks. Soon after the suppression of the Abbey the manor of Queen Charlton, with others in the neighbourhood, became the property of Queen Catherine Parr. The great tithes, however, together with a messuage near the churchyard called the Sexting, were apparently granted to Sir William Herbert, Knight. The family of Pophams held it in the eighteenth century, and in 1769 sold it to Vickris Dickinson. The ancient family of Dickinson were in former times settled in Yorkshire. Capt. Francis Dickinson left three sons, of whom the survivor, Caleb, wedded Elizabeth, the daughter of Richard Vickins, a merchant and alderman of Bristol. From that time the manor of Queen Charlton had been the property of the Dickinson family, Marchesa Chigi being the present lord of the manor.

Just beyond the church and almost hidden among the profusion of foliage by which it is surrounded, stands the ancient and picturesque manor house. Opposite the house is a remarkably fine Norman arch which leads into large gardens. The arch is richly ornamented with chevron design, and is wonderfully preserved. According to Collinson, it formed at one time the entrance to the court-house or convent, which, if the statement concerning certain lands severed from Keynsham Manor at the founding of that Abbey, and given to the religious establishment then existing at Charlton, is correct, must have occupied that site in Norman days.

Charlton manor house is approached on the east side by a carriage drive lined with fine trees, conspicuous on the left being a grand old yew. An object of interest, possessing a picturesque appearance, at a short distance from the main entrance on the left of the drive, is the ancient and ornamental set of stone steps which in former days afforded the means for ladies to mount their steeds.

The house consists chiefly of the main central block with an addition forming the large dining-room on the west side, and an extended portion, which has the appearance of greater antiquity, on the east. This quaint old residence has something about it which is more fascinating than many other buildings of its kind. Ivy, rose trees, and other foliage cling to its walls, which give it a most delightfully rural and home-like aspect. Between the north and south wings, if such they may be termed, is the south entrance, with small window on the north side. On the parapet in the centre is the figure of a large eagle with closed wings, standing in stately attitude, and upon the gables, of which there are two, are representations of greyhounds. At each corner of the parapet is a carved urn, and at the extreme east end is a vase filled with fruit. Below one of the dogs on the face of the gable are carved heads representing a king and a queen, and below these again are another carved device on the south, and a shield with arms on the north side. The windows are all in the Tudor style, and are most of them dated 1557.

An air of dignity pervades the whole of the premises, but in the south gardens the cloister-like appearance of the boundary wall, with its arcading of ivy-clad arches, its fragments of sculpture, and the effigy of an abbot or other dignitary of the Church placed against the wall, tend to give it an unusually ecclesiastical appearance. The effigy referred to is fixed high up in the centre of the garden wall, and represents the half-length figure of an ecclesiastic. Though much defaced and mutilated by exposure to the weather, the face still bears a pleasant expression. A large lawn stretches to the west, at the eastern end of which is a neat, old-fashioned flower garden, with trim set paths and ornamental beds for flowers, and on the east wall another solemn-looking eagle with watchful eye looks down. To the south of this garden lie rustic plantations, and immediately under the wall, on the south side, are the conservatories, and at a short distance on the same side are the tennis courts.

The main entrance, on the north front, leads into the hall, which is a beautiful apartment. It is one of the most delightful old rooms imaginable, panelled with dark oak and a panelled ceiling with pendants in each division, and Tudor roses at the intersection. On the west and south side are the head and foot of an elaborate black oak bedstead, upon which it is said Queen Catherine Parr slept. The head of the bedstead is on the west side of the hall, and rests upon a handsome cabinet forming its upper portion. It is exquisitely carved, and is extremely elaborate and elegant in design. The foot of the bedstead, which is not so large, but equally handsome, is placed against the south wall. The hall also contains ancient chests, a superb Italian cabinet, Jacobean chairs, armour, weapons, such as battleaxes and spears, a good mantelpiece and massive beams stretching across the ceiling. In fact, everything in the room is in keeping, and bears the unmistakable stamp of antiquity. The entrance door on the north side, the upper portion of which is glazed, contains several good medallions in old Flemish glass and the Royal Arms of Henry VIII.

At the east end of the hall a doorway leads to the inner hall. Here may be seen some splendid old oak carving in the magnificent staircase. The walls are wainscotted, and both at the foot of the staircase, which ascends at right angles, and above, in the stairs, are beautifully designed figures, with their arms lifted to their heads, upon which they carry a burden. It is a remarkably carved staircase throughout, and not only is it handsome and elegant, but the carving of the figures and the excellent workmanship displayed in their execution render it more than usually attractive. The library is panelled in black and white throughout, and has a good ceiling and ancient windows. The drawing-room is on the left of the inner hall. This fine apartment extends the whole width of the house, and is well lighted with windows facing east and west. It has a panelled ceiling, and in addition to its elegant and tasteful furniture the walls are adorned with many pictures, most of which are family portraits.

The large dining-room, above which there are no other rooms, was probably added to provide extra accommodation. It is placed on the west side of the great hall, is panelled, and has a good chimney-piece. At the farther end a doorway leads into the chapel. This is a beautiful apartment, now used as a sitting-room. It is square in shape, with high roof, and lighted with windows containing coloured designs. Around the walls under the roof the cornice is emblazoned with crests, and between each crest is the date 1557. Few authentic accounts are to be found relating to Queen Charlton manor house, for its history, together with

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the names of many of its early tenants, has been allowed to disappear in the forgotten past, and little can be discovered from its architectural features. It has all the appearance of being inhabited at one time by the religious, but whether they actually lived in the present building or in another there is now no definite means of telling. That it has been honoured by visits from Royalty there is little doubt, but if one is to believe all that is said concerning the Royal visits paid, and all that is alleged to have taken place there, it must have been an exceptionally attractive residence. Whether it be regarded in the light of a religious establishment, the palace of Royalty, or the charming home of the successive lords of the manor, it possesses a distinctly interesting past. Within its aged walls or in its picturesque and time-honoured appearance without, it still forms a striking example of a most delightful and typical manor house of early times.

The ancient church hard by, dedicated to St. Margaret, is of Norman date, and originally had two transepts. It contains some good examples of late Norman work, corresponding in date with the Norman archway standing opposite the manor house.

"IN CHASTENED MOOD."*

DURING the last twelve months most of us have pursued our ordinary avocation under conditions which were far from encouraging. For one thing, the depletion of our ranks caused by the enlistment of probably more than 200 trained and qualified sanitary inspectors in the Army and Navy, more especially the sanitary detachments formed in conjunction with the R.A.M.C., was bound to have some effect. I may perhaps be excused if, parenthetically, I dwell upon the magnificent response made by sanitary inspectors to the call for recruits, which, having regard to the relative smallness of our numbers and the large proportion of those beyond military age, is probably not excelled by any other class of the community. For another thing, the establishment of military camps and the quartering of soldiers in and about small country towns and villages have imposed considerable burdens on many of our colleagues, insomuch that ordinary routine work is bound to suffer. It would, however, appear that this reduction in normal sanitary activities is not deemed sufficient, and there are insistent cries to be heard that there shall be a practical cessation of public health work during the period of the war, and it is this demand which I propose to consider during the time remaining at my disposal. I venture to claim that applied sanitation is one of the most essential of the "activities necessary for preserving a decent standard of living," and as such its maintenance is of the utmost importance. Nay, I think I may go further and contend that for the successful prosecution of the war itself public health work cannot be dispensed with.

From all that we can learn, the activities of our comrades who belong to the several sanitary corps located "somewhere" in France or Belgium, have been strikingly successful in preventing the spread of disease, which in all previous campaigns has exacted a far heavier death toll than shot or shell. From letters I have received from those at the front, all the materials necessary to kindle a great conflagration abound. Conditions which we regard as revoltingly insanitary have to be dealt with, and it is only by the heroic and devoted efforts of our brethren abroad that grim pestilence does not walk unmolested in the ranks of our brave soldiers. Surely the relatively clean bill of health presented by most of our forces must be accredited to persistent pubic health propaganda. Then, again, there has been the work performed by sanitary inspectors in our own country. As I have suggested elsewhere, it is no small matter for a busily-employed health officer working in a rural or semi-rural area suddenly to have the normal population of his district doubled or even trebled by the irruption of military forces. All his available resources are heavily taxed by demands for the removal and disposal of refuse, the protection of water and food supplies, the maintenance of billets in a sanitary condition, and the prevention of overcrowding, and here, again, the remarkably small incidence of preventible disease, considering the presence of large aggregations of men, is a striking testimony to the efficacy of sanitary work. No one would aver that precautions of this character, involving as they have done expenditure of public and private moneys, have not been amply justified, and the most rigid economist would hesitate to prescribe any slackening of sanitary effort in these directions. Admittedly, then, sanitation is the supreme safeguard in circles military, but can this be said of circles civilian? Here, again, it is more than an arguable proposition that the past labours of sanitarians among the ordinary civilian population have made it possible for so many to comply with military tests as to physical fitness. Under a conscript system, all men, save those markedly defective, undergo a period of training at some time of their lives, but it is quite another thing to select good material from among the workers in mine, factory, shop, or counting house, without a day's previous training under canvas, and the sanitarian can plume himself on the fact that hundreds of thousands of men working under such hygienically unsatisfactory surroundings have been found capable of taking up arms. At the present time, too, operatives in our munition establishments are working early and late to produce the wherewithal to secure a victory over our foes. Is it a wise step, regarded merely from the point of view of military exigencies, to compel them to sleep in houses reeking with filth and damp and badly ventilated, or to submit them to any conditions which may impair their productive capacity?

And what as to the future? So far, the efforts of our comrades abroad have countered the machinations of the demon of disease, but there may come a time when from, say, the Near East, soldiers may return, bearing within them the micro-organisms of typhoid fever or other disorders. With these by no means remote possibilities can we regard this as a fitting time to relax sanitary effort? Then there is the aspect which has been forcibly put forward by one of our members. Are we to evince our gratitude to returned warriors by inviting them to take up their abode in dirty and dilapidated tenements? Manifestly those who have risked their all in the defence of their country deserve better treatment at the hands of those who have stayed at home. One of the most pitiful aspects of the war is revealed by a study of the casualty lists. Daily we are losing hundreds of the best specimens of our race; bright, hopeful young lives are sacrificed to the relentless Moloch. And what as to those who shall replace them? Surely, it would savour of race suicide were the necessary conditions for the attainment of a healthy manhood withheld from the children of the present day. The significant announcement that the death-rate for the June quarter of the present year is 1.2 per thousand higher than the decennial average is evidence that the strain and stress of war time is telling upon the civilian population, and that not diminished, but rather increased, sanitary surveillance is called for. Lest I should be misunderstood, let me say that, owing to economic and other difficulties, we may have to rest content with the somewhat inglorious pursuit known as marking time, but I do most strongly protest against the proposal to put back the hands of the sanitary clock. I realise, for instance, that, owing to the tremendous advance in the price of building materials and increased loan charges, local authorities cannot embark on extensive housing schemes, which means that closure and demolition of tenements must only take place in the last resort, otherwise overcrowding, which in many places is becoming a most disquieting factor, will create serious difficulties. We shall have to be content with advocating what is contemptuously designated as a patching policy, but at all costs we must see that houses shall not pass into a derelict condition, else the evil of scarcity of house accommodation will be intensified at the conclusion of hostilities. On the whole, then, whilst I would advocate a sparing use of the powers given under the Housing and Town Planning Act, 1909, I would, on the other hand, urge that to permit the Public Health Act of 1875 to become a dead letter would be most disastrous.

Just now we are confronted with a highly laudable and widely-spread demand that individuals, the State, and local authorities should manifest economy in every conceivable direction.

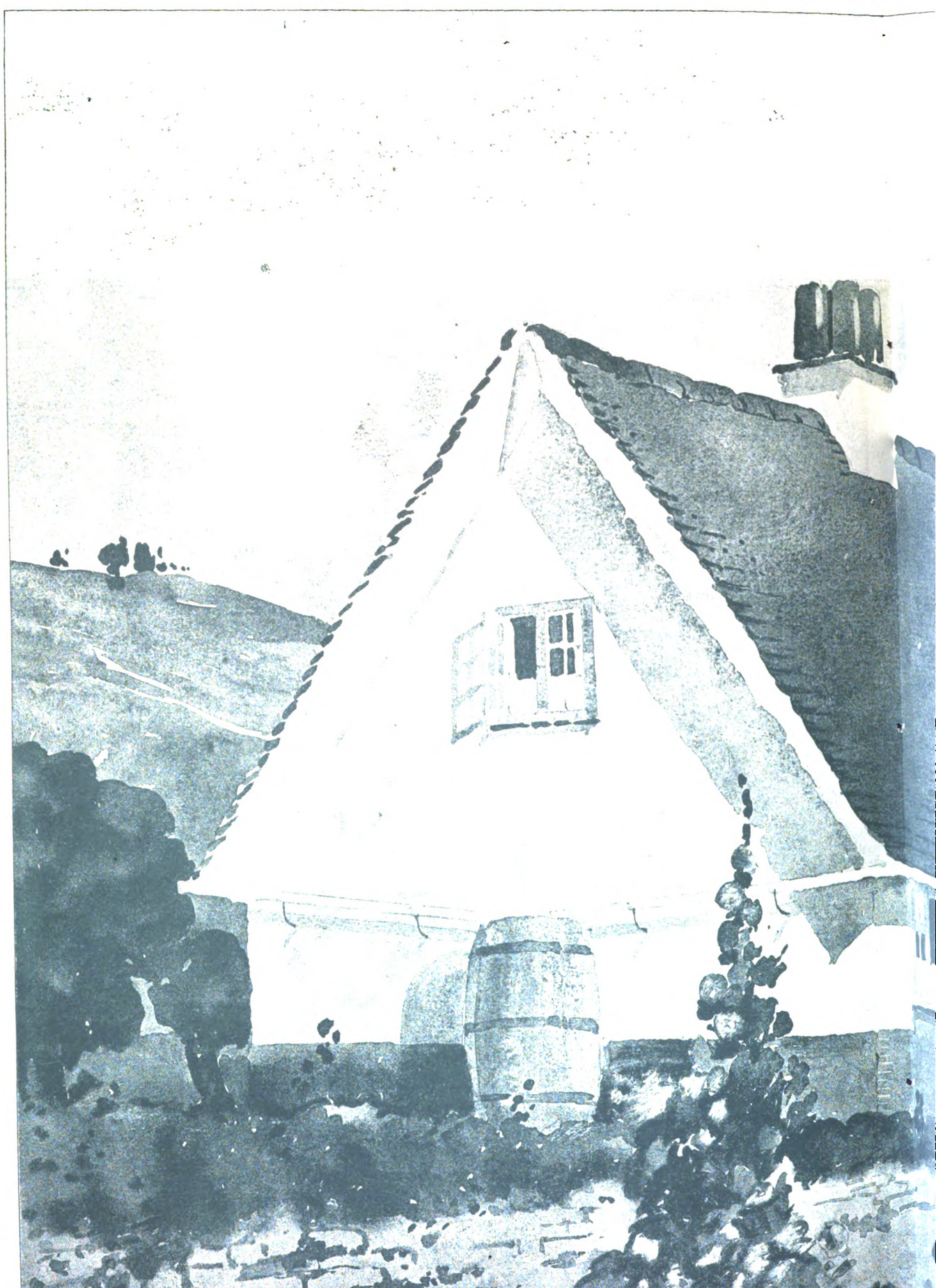
The demand that local authorities shall retrench is voiced in a curiously inconclusive fashion by the Local Government Board. I notice that one county borough has already appointed a special committee to carefully revise its estimates, and that this committee, after effecting savings in several departments, arrives at the decision that the new rate will be 7*s.* 1*d.* in the pound, instead of 6*s.* 11*d.* The President of the Local Government Board, in his adjuration to local authorities to make every effort to reduce rates, rather unfortunately, in my opinion, particularises certain items in which cutting down of expenditure may be permissible. He

* A Paper by Mr. H. H. Spears (West Bromwich) read before the annual meeting of Midland Centre of the Sanitary Inspectors' Association at Lichfield.

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COTTAGES AT H
MR. ARNOLD MITCHELL,

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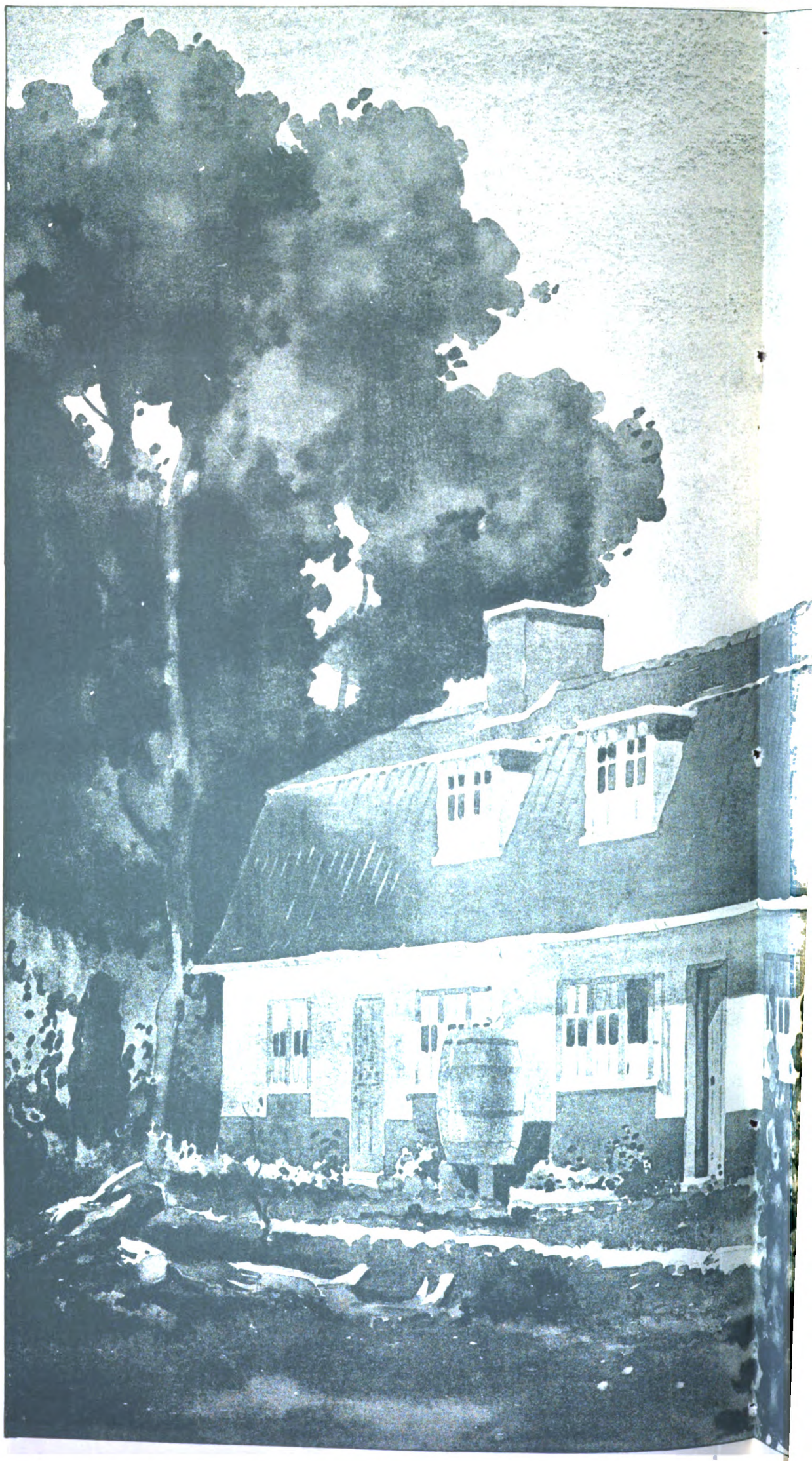
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COTTAGES AT WROTHAM
Mr. ARNOLD MITCHELL F.R.I.B.A.

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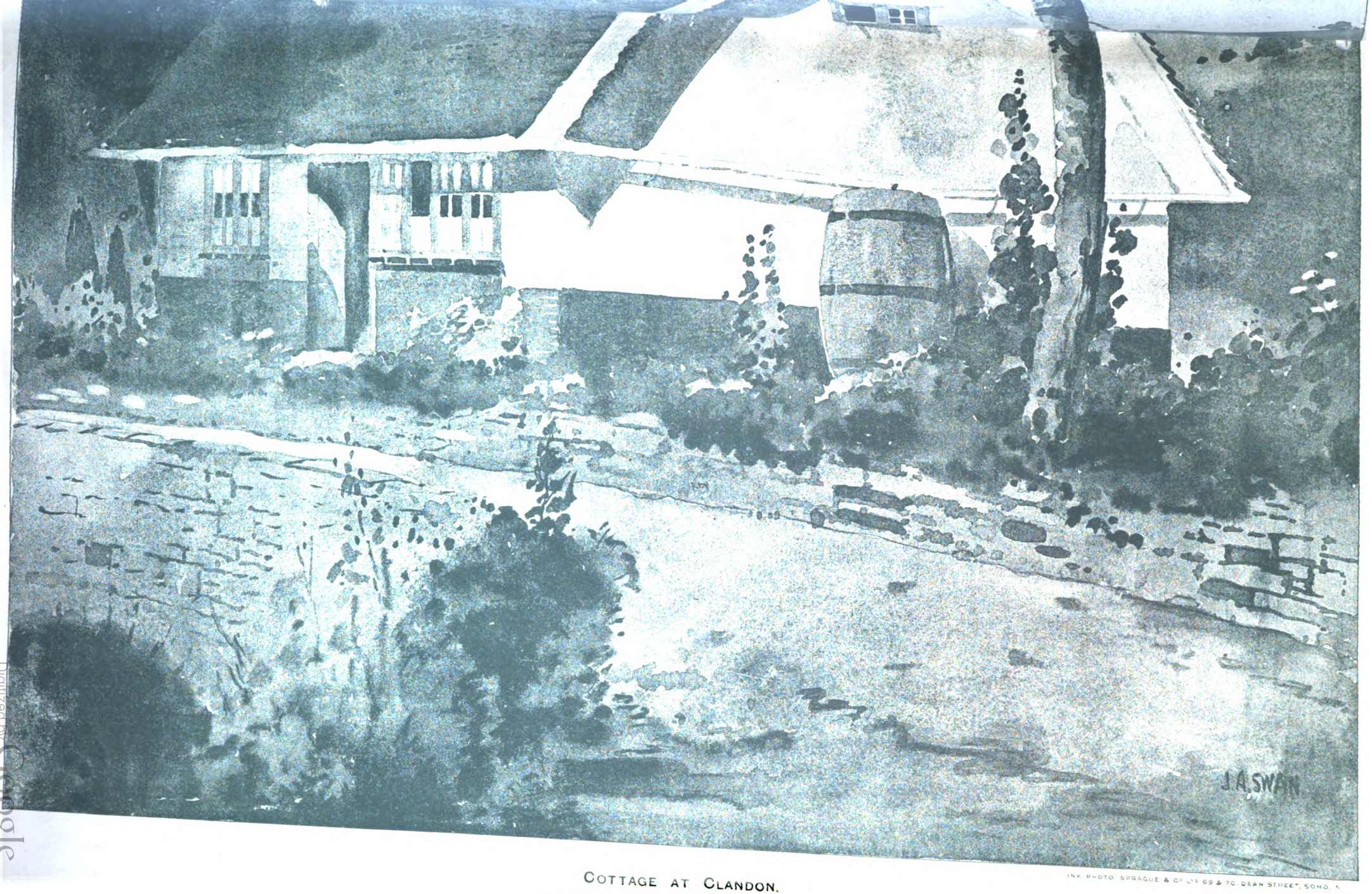
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COTTAGE AT CLANDON.

Mr. ARNOLD MITCHELL, F.R.I.B.A., Architect.

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tells us that "expenditure on such objects as parks, recreation grounds, libraries, street lighting and watering, and the running expenses of all institutions require careful investigation with a view to possible economies. In some cases considerable economies should be possible, but even small economies are valuable, particularly where they involve the freeing of labour for other more immediately important functions." As regards parks and recreation grounds, whilst expenditure on elaborate carpet bedding might possibly be curtailed, it would be poor economy to allow them to run fallow. Furthermore, in our large and crowded towns the preservation of open spaces ought to need no justification. The expenditure on libraries, again, forms such a small item in local expenditure that one can scarcely see that the shutting down of all libraries would have any material effect, and, to say the least, the frequenters are very much better occupied there than they would be in the streets or even less desirable resorts. We have learned to submit to the inconveniences of diminished street lighting, but from my experience of many towns I doubt if any further reduction can be safely effected, whilst the admonitions to curtail expenditure in street watering will be received coldly by shopkeepers and cleanly housewives who reside in the vicinity of roads utilised for motor traffic. I gather that Mr. Walter Long does not espouse the suggestion put forward by one Government official, that with a view to the liberation of the services of men employed by local authorities for munition making, refuse destructors might be closed down and that scavenging of ashpits, &c., might take place less frequently. The fact that relatively the same quantity of refuse would have to be collected in any given three months, whether removed quarterly or weekly, did not seem to occur to this gentleman. Without wishing to press the *tu quoque* argument unduly, I would like to be reassured on the topic as to whether there is no wastage as regards military expenditure. When one reads the disquieting intelligence that meat is often served to military encampments in excess of requirements owing to defective organisation, those responsible for provisioning the camp not being acquainted with the fact that there are fewer soldiers to be supplied, one feels that before the State Government rebukes the local administration for the mote in its eye, it should remove the beam in its own eye. I am glad to note that Mr. Long is opposed to the cessation of efforts having for their object the protection of health or the removal of nuisances. I am by no means persuaded that the present is the most inopportune moment for asking owners to undertake constructional work. True it is that by increased Imperial taxation, and in many cases, I regret to be informed, increased demands in the way of interest on mortgages, owners of property are being hit rather heavily, but there are offsets. In our large centres of population there are very few void houses, very few people are out of work, whilst owing to the practical cessation of house building increased rents are readily obtainable for small houses.

Under these circumstances I submit that owners of property are in a far better position to execute sanitary works than they are likely to be at the close of the war. When soldiers are returning in their thousands, when military allowances to dependents have ceased, and during the interregnum which must occur whilst energies latterly devoted to the production of armaments are being directed into other channels, it seems inevitable that there will be considerable unemployment and distress, and the incidence of Imperial taxation is not likely to be less marked, as demands for the execution of works by local authorities will be far more burdensome at such a juncture. I take it that we are all agreed that curtailment of unnecessary expenditure in all departments of our national and social life is most desirable, but I fear that some enthusiasts in the cause of economy do not appreciate the sensitiveness of the social organisation and the interdependence of all sections of the community. Were some of the proposals carried into effect, it is to be feared that substantial injury would be inflicted on large bodies of individuals, and that the compensatory advantages obtained by the remaining members of society would be very slight indeed. Notwithstanding my hurried and incomplete survey, I trust that I have established to your satisfaction the proposition which I have sought to substantiate—viz., that it is most imperative that there shall be no moratorium as far as public health work is concerned. It is true that a trying time is in front of us. Our demands must be formulated, as I believe they generally are, in a spirit of sweet reasonableness, and we must be prepared to encounter many formidable obstacles; but, if I am correct in my surmises, we must keep the flag of sanitation flying, lest the future welfare of our race may be imperilled.

FIRE PROTECTION IN SCHOOLS.

THE National Fire Brigades' Union has issued the following recommendations:—

EMERGENCY EXITS.

These should be arranged as far as possible at opposite ends of the building, so that in the event of one being rendered impassable by smoke or fumes, the other will probably be available.

It is of first importance that those occupying the building should be regularly drilled so as to become familiar with the use of these exits. It should be borne in mind that possibly, owing to the fusing of an electric wire or destruction of a gas pipe, the exit may have to be carried out in the dark.

Where the door of an emergency exit has to be kept fastened ordinarily, it is better to secure it by a simple bolt enclosed in a glass case, rather than by a lock with the key suspended in a glass case; inserting a key in a lock is apt to prove troublesome when done in a hurry, and locks are apt to rust up.

The glass covers for enclosing bolts should be supported on two opposite sides only at ends of longest axis, so that they will break in the middle without splintering, and fall out clear so as not to cut the operator.

FIXED APPLIANCES FOR ESCAPING FROM UPPER WINDOWS, &c.

The windows of dormitories, &c., should not be barred.

In the absence of proper fire staircases, for first-floor windows a simple rope of good thickness suspended from a hook attached to an iron bracket, fixed to the outside of the building either just above or on one side of the window will probably afford sufficient means of escape in the event of need. The ropes should be kept inside near the windows. To guard against improper use they should be tied up with a thin tape and sealed.

Give careful instructions that the end of the rope is never to be dropped out of a window until the other end is securely attached to the fixed hook on the wall outside.

For higher floors the provision of an escape or ladder is advisable.

Frequent drills in the use of exit appliances are essential, and should be under the supervision of selected members of the staff, specially appointed and instructed in the method of removing the pupils.

Where there is a sanatorium an adequate number of the staff should be permanently told off for the safe removal of the patients. If the sanatorium is a detached building the "Suggested Precautions for Hospitals" might apply.

EXTINGUISHING APPLIANCES.

Schools should be provided with a suitable fire plant; this may consist in the first place of chemical extinguishers of simple construction, fire buckets or hand-pumps, placed in conspicuous positions throughout the building. The water in hand-pumps or buckets should be frequently changed, and extinguishers periodically recharged, to ensure their being instantly ready for use.

In laboratories especially, the chemical extinguisher will be found most serviceable, as fires arising from oils, spirits, and like inflammables should not be attacked with water. Bins (with scoops) containing sand, asbestos sheeting, heavy sacking, or like material for smothering the flames should be kept at hand where chemical and other experiments are conducted.

In schools where a supply of hydrants with water under requisite pressure is not available, some form of engine is desirable.

Where indoor hydrants are provided, they should be fixed in such positions as not to interfere with or be in the way of clearing the building of its occupants. The hose (flaked or coiled from centre, with branch-pipe attached, and connected with the hydrant) should lie in a swinging cradle hung up in such a position as to ensure it being safely and easily run out.

The person discovering the fire should at once sound the fire alarm and summon, or cause to be summoned, the local Fire Brigade, then get to work as follows:—

With hydrants, if single-handed, take branch, run out the hose in the direction of the fire, lay branch back on the hose and return to hydrant, turn on water, hurry forward, pick up branch, and attack fire.

With short length of hose the water may be turned on at the time of taking the branch, but this method should only be adopted by experienced hands.

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When two persons are available, one should take the branch and run out the hose, the other stand by the hydrant to turn on the water when all is ready.

As far as possible all doors and windows should be closed to prevent draught. When working in dense smoke the head should be kept low by crawling along the floor: a damp handkerchief over the mouth and nostrils is a good respirator.

All gas jets should be provided with wire guards.

There is a grave source of danger in locked-up store-rooms and cupboards, and it is most essential that an automatic alarm be installed in each such store, in order that a fire may be detected in its initial stages, and extinguished before it attains large proportions and causes a great amount of smoke to accumulate, which will sooner or later permeate the building, creating alarm and danger of suffocation.

FIRST-AID FIRE BRIGADES.

When the staff is small in number, *every member* should be instructed in the working of any indoor hydrants or other extinguishing appliances. Where the staff is a large one it is advisable to organise a First-aid Fire Brigade, the members being so selected as to leave some responsible person in each room or department for the orderly removal of the pupils. Where, as in many schools, the buildings and boarding houses are distributed over a considerable area, a separate Brigade should be organised in each house.

Some reliable person should be appointed to look after the fire plant, to see that everything is kept in its place and in working order, and to report to the proper authority when anything is needed or has gone wrong.

It is recommended that the assistance of an officer of the local Fire Brigade should be obtained, when possible, in the organisation and training of a First-aid Brigade.

WAINSCOT OAK.

THE golden age of wainscot oak, remarks a writer in the *Timber Trades Journal*, may be pictured in its bud or bloom during the latter half of the seventeenth and first half of the eighteenth century, when its use was largely influenced by Sir Christopher Wren and King William III. (1689-1702). The former has left this impression with us in the interior of his London churches, and the latter, hand in hand with him, in Hampton Court Palace. Here we have the opinion of a practical man who flourished in the City a century ago: "The wainscot oak in the old houses in the country was mostly English oak; there was not much Dutch or Riga wainscot before the reign of William III. I think Sir Christopher Wren introduced a great deal of it in this country in his time; he was building for a Dutch king; therefore it was natural he should use it." (John Armstrong, before the Committee of Timber Duties, 1835.)

"Dutch wainscot," which he placed first, was the finest wood that Europe or the world has ever produced. It was obtained in the sawn or converted form, and quartered to 17 inches a century later than Wren and William's time, and, what appears to have been forgotten, had its natural floatage and outlet in the Rhine. Riga, Memel, and Dutch wainscot, in the log form only were then rated as inferior. Here be it known that the word wainscot implies a board, not a log.

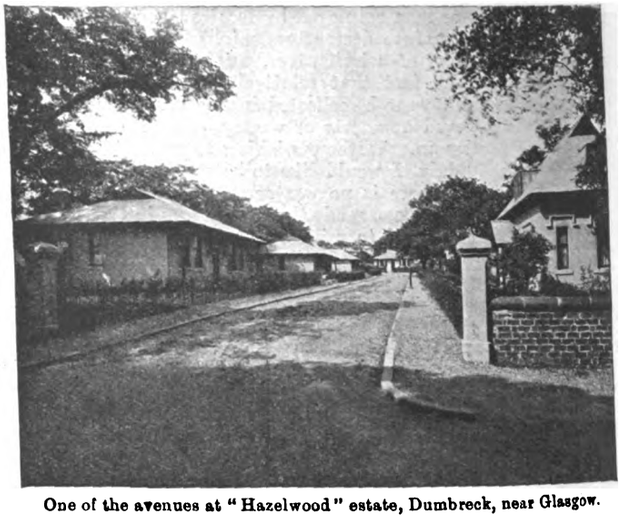
In the evidence of Mr. Henry Warburton, M.P. (who succeeded his father in 1808 as a "wholesale foreign timber dealer" and "yard-keeper" in London, and conducted that business until 1831), we have the following: "Formerly most of the wainscot used in this country came from Holland or Ostend. It is cut from logs that are brought down the Rhine, and which grew principally, I believe, on the country adjoining the Moselle. The windmills by which it is cut are principally at Westzaam and Zaandam, near Amsterdam, but there are others near Rotterdam."

There was a "standard board," the unit of the Dutch sawn-wainscot trade, and every detail hung upon it. The length was 12 feet, its other dimensions about 11½ inches by 1 inch, which possibly meant 12 super. feet of 1-inch wood in a newly cut board. In 1757 such a board, computed or otherwise, could be imported into London, all charges paid, for 3*s.* 3*d.*, which included barely 6*d.* duty (about 3¼*d.* per foot superficial), a rate that obtained until 1783, when the duty was advanced to 10*d.* This, hitherto protective in favour of colonial woods, was then swelled for revenue purposes. By 1803 the same wainscot board under like pressure cost 7*s.* 4½*d.* to import, out of which 2*s.* 11*d.* went for duty, bringing the price up to nearly 7½*d.* per foot. In 1814, nearing the end of the long war, the import cost stood at 11*s.* 4½*d.*, carrying a duty of 6*s.* 4*d.* From 1757 to 1814 the board costing 3*s.* 3*d.* had increased 245 per cent.

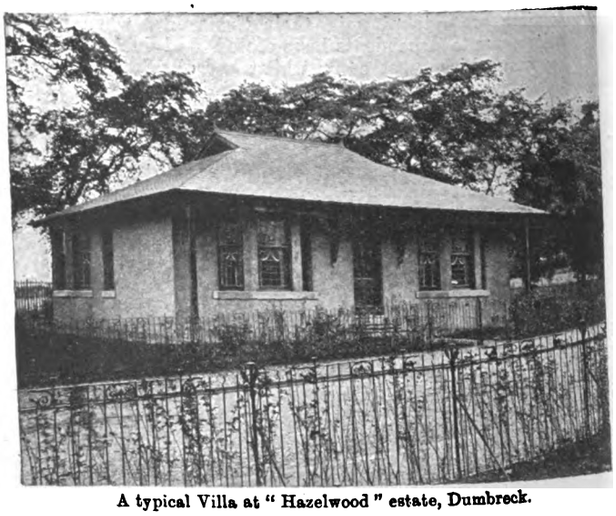
During all the above years there was not a penny duty imposed on wood from our colonies, or, indeed, not until 1821. European oak was thus strangled, and the hard-wood trade was largely turned into mahogany, cedar, and American or Canadian oak. This handicap accounts for the solid mahogany doors we see in our old-fashioned houses, and the same wood in church and chapel fittings of our fathers. True, there was a duty-drawback on Dutch wainscot and other duty-paying woods where used in Established churches, but not a penny in other churches and chapels.

GARDEN CITIES AND ELECTRICITY.

A GARDEN city situated within a tramway journey of such a city as Glasgow stands in an exceptionally favourable position—at least as far as its electric supply is concerned. Therefore it is not surprising that when it was decided to establish a colony on the "Hazelwood" estate at Dumbreck electric power should have been used considerably. According to Mr. Lackie, chief electrical engineer of the city, these are the first houses in which domestic requirements are entirely dependent on electric power. These villas, of which illustrations are here given, have been erected by Messrs. Geo. Hamilton & Co., of Glasgow, and are built in several sizes—of four, five, and six apartments. They have rough-cast fronts and are roofed with red asbestos tiling.



One of the avenues at "Hazelwood" estate, Dumbreck, near Glasgow.

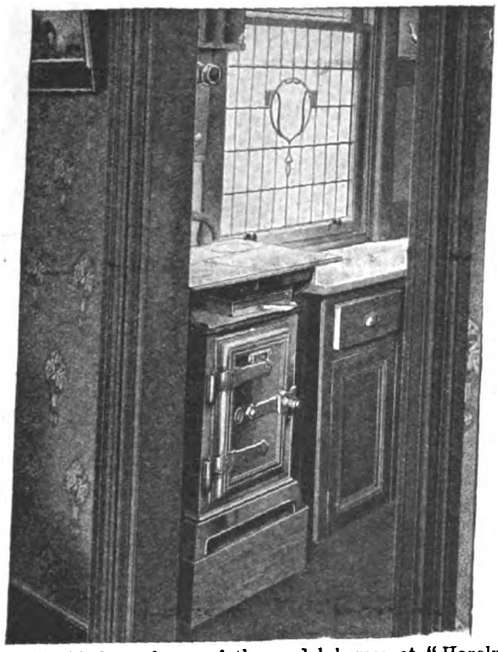


A typical Villa at "Hazelwood" estate, Dumbreck.

The fires in the principal rooms of these model houses, particularly in the drawing-rooms, were supplied by the

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Carron Company, Carron, Stirlingshire, and comprise several of that company's newest types, of which they have numerous registered designs. These fires give a rich red glow of heat, as near the natural fire as one could wish. The standardised elements with which they are fitted are easily interchangeable. Guard tumbler switches and earthing terminals are also provided. This type of fire is most reliable in action, portable and inexpensive in first cost and maintenance, and, being artistic in design, considerably



A peep into the kitchen of one of the model homes at "Hazelwood" estate, Dumbreck, showing a Carron electric cooker.

adds to the decorative effect of the room. The cookers, which are by the same firm, embrace their No. 304 and 305 types. The ovens in these cookers are double-cased, and packed with heat-retaining material, exteriors being of moss-green porcelain enamelled steel sheets. The interiors are of



Corner of a drawing-room in model home at "Hazelwood" estate, Dumbreck, showing a Carron electric fire.

mottled white and grey porcelain, enamel lined; the raised parts, including hob—which is fitted with boiling plates and grill complete—are ground and polished, and all heating elements are standardised and removable. Indicating switches, fuses, and pilot lamps are supplied to each cooker, the pilot lamps indicating at a glance whether the current is on or off, thus avoiding waste of electric energy.

Hot-water heaters are placed in the bathrooms immediately over the taps, and, being near the delivery, obviate the loss of heat that would occur with long pipes.

As some indication of the economy and efficiency of electric cooking, it might be mentioned that a breakfast can be prepared and served in the time usually required to make up a coal fire, and, according to tests taken by Mr. Hamilton during the month of June, the cost for cooking, lighting, and heating for six persons worked out at the very moderate rate of 8*d*. per person per week.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Aircraft Raids and Ancient Churches.

SIR,—In a lecture on Romanesque and Gothic doorways, delivered by Mr. C. H. Dedman, at the Royal Photographic Society's exhibition, he referred to the great risk of damage and destruction by aircraft to ancient churches, particularly in the Eastern Counties. After the raid on Scarborough the local authorities issued requests for photographs of buildings showing their condition prior to receiving injury, and received but a poor response. Yet there are thousands of photographers, both professional and amateurs, in the country willing and even anxious to make records at the present time if allowed to do so. In view of the fact that restrictions are necessarily placed on out-of-door photography, permits would have to be granted by the War Office or police authorities. If such permits were granted loosely there might be a danger of giving facilities to alien enemies resident in the country, but this danger can readily be guarded against by requiring references from the applicants to the officials of the many photographic societies throughout the land. Personal knowledge of the applicant would be a *sine qua non*, and the permit would be granted only for special work at specified places.

Our well-known abbeys, minsters, and cathedrals have probably been photographed from every point of view, and records of details secured, though many of these photographs have in the course of time been lost. The smaller ancient churches up and down the country, however, have not received the same attention, although they contain priceless relics of the past, which could not be restored in the absence of large-scale photographs. In some instances a single door, a window, or a few capitals are all that remain of the ancient work, and these should be copied on a scale large enough to show the tool marks. No expense to the country would be incurred, but co-operation by the Government, the clergy in charge, and the photographer is necessary. The work should be undertaken at once.—Yours, &c.,

J. MCINTOSH, Secretary.

Royal Photographic Society, 35 Russell Square:
August 25, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Reading.—Reading School: additions.

BUCKINGHAMSHIRE.

Amersham.—"Chilterns," Ley Corner: alterations. Messrs. Kemp & How, FF.R.I.B.A., architects, 4 Bloomsbury Square, London.

Ashley Green.—House, Two Dells Road, for Mr. Kew.

Chalfont St. Peter.—Two houses, for Mr. Morley.

Gawcott (near).—Proposed isolation hospital.

Gerrards Cross.—House, Bulstrode Way, for Mr. C. C. Baldwin.

CHESHIRE.

Birkenhead.—Cinema house, Conway Street. Mr. T. Taliesin Rees, F.R.I.B.A., architect, 51 North John Street, Liverpool.

Crewe.—Parish Church, Coppenhall: parochial hall.

Macclesfield.—Proposed post office.

Newton-by-Frodsham.—Elementary school (250 places), for the National Children's Home and Orphanage.

DERBYSHIRE.

Belper.—Five cottages, Whitemoor Lane, for Mr. W. Frost.

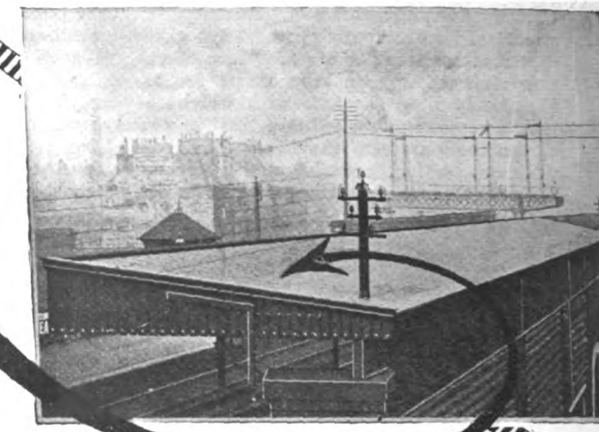
Shardlow.—Workhouse: infirmary. Mr. J. Sheldon, architect, Darley House, Long Eaton.

DEVON.

Newton Abbot.—House. Mr. F. E. Lloyd Downes, architect, 36 Queen Street. Messrs. Blunt Brothers, contractors, Station Road, Teignmouth (£637).

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"ROK" is economical, because it outlives iron—is cheaper than slates or tiles and needs no annual tarring or other coating.

It is the most permanent roofing withstanding the severest climatic tests in every part of the World. It withstands acid and chemical fumes, heat or frost, and the heaviest downpour cannot penetrate "ROK."

The illustration shows Gorbals Station, Glasgow, Barrhead and Kilmarnock Railway.

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and Roach Road Works, Old Ford, LONDON, E.

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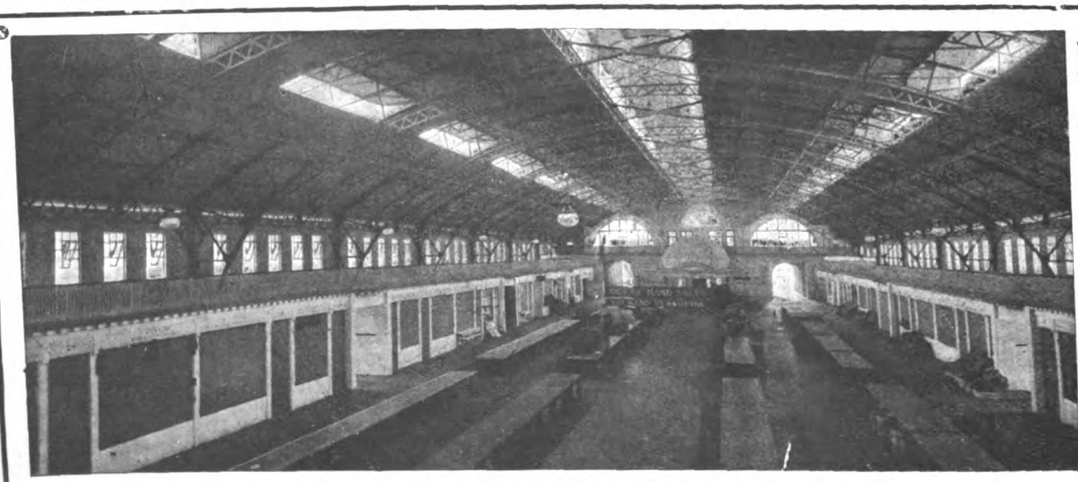
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ENGLAND—*continued.*

DURHAM.

Annfield Plain.—Six houses, Churnside Terrace, New Greencroft, for Messrs. Lee & Dunn.

No. 1 Sabin Terrace: additions. Mr. T. E. Taylor, architect, Front Street.

Sunderland.—Training college for teachers. Mr. G. S. Brown, F.R.I.B.A., architect, 51 Fawcett Street.

ESSEX.

Chelmsford.—Building, New Whittle Street, for the National Steam Car Co.

Works, corner of New Street and Rectory Lane, for the Hoffmann Manufacturing Co.

Rowhedge.—Clothing factory: extensions. Mr. D. W. Clark, A.R.I.B.A., architect, 3 High Street, Colchester.

Southend-on-Sea.—Seven houses, Gainsborough Drive, for Mr. H. Pitt.

House, Southview Drive, for Mr. T. J. Dennis.

KENT.

Rochester.—Fifty cottages (for Government workers), for Strood D.C.

LANCASHIRE.

Cloughfold.—Motor garage, off Bacup Road, for Mr. W. J. Watson.

Wesleyan Sunday School, North Street.

Levenshulme.—St. Robert's Catholic Church, school and presbytery, Crowcroft Park.

Rufford.—Two houses, Holmeswood Lane, for Mr. H. Sutton.

LINCOLNSHIRE.

Holbeach.—Proposed mission church, Holbeach Clough, for the Parish Church school.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Public Hall, Benwell. Mr. J. W. Benwell, A.R.I.B.A., architect, Lowther Street, Carlisle.

NOTTINGHAMSHIRE.

Mansfield.—Factory, Chapel Place: additions for Messrs. G. Pickard & Sons.

Factory, Dallas Street, for the Mansfield Shoe Co., Ltd.

Factory, St. John Street: additions and alterations, for Messrs. Alcock & Co.

Two houses, Southwell Road, for Mr. J. W. Baxter.

Two houses, The Rock, Southwell Road. Mr. L. Bright, A.R.I.B.A., architect, 9 St. Peter's Church Walk, Pepper Street, Nottingham.

Houses, Southwell Road: additions, for Mr. W. Holloway.

Worksop.—Houses, Manton, for the Wigan Coal and Iron Company.

STAFFORDSHIRE.

Lichfield.—House, Drill Lane, Burntwood: extension, for Mr. G. Rowley.

Stoke-on-Trent.—St. Mary's R.C. School, Fenton. Messrs. Wood & Goldstraw, A.R.I.B.A., architects, Town Hall, Tunstall (also at Hanley). Messrs. Tompkinson & Bettelley (of Longton), contractors (£1,087).

SUSSEX.

Binsted.—Council school: alterations.

West Grinstead.—R.C. school: alterations.

WARWICKSHIRE.

Birmingham.—Factory. Mr. L. L. Dussault, architect, 39 Newhall Street.

Coventry.—Electricity Works: extensions.

Rugby.—Factory, Wolston: additions, for Messrs. Bluemel Brothers.

Three houses, Hillmorton Paddox Estate, for Mr. A. Starkey.

YORKSHIRE.

Castleford.—Chapel-of-Ease, for Allerton Bywater Catholics.

The "Gardeners' Arms" p.h., Church Street: reconstruction. Messrs. Massie & Holdsworth, architects, Yorkshire Buildings, Wood Street, Wakefield.

Crimble.—Three houses, Brook Terrace, for Mr. H. Haigh.

Hebden Bridge.—Birchcliffe Church: proposed school.

Huddersfield.—Bakehouse, Deadwaters: alterations. Messrs. J. Berry & Sons, architects, 3 Market Place.

WALES.

Colwyn Bay.—Bungalow, Brompton Avenue, for Mr. W. Stephenson.

Two houses, Upper Promenade. Mr. O. Jones, builder, 5 York Road.

Denbigh.—Refuse destructor.

Porth.—Cottage Hospital: addition.

Queen's Ferry.—The "Hawarden Castle" Hotel: alterations. Mr. F. Davies (of Chester), architect.

SCOTLAND.

Airdrie.—Depôt, Main Street: garage and offices (£2,400), for Airdrie and Coatbridge Tramway Co.

Offices, Main Street: additions, for Messrs. Stewarts & Lloyds, Ltd.

Shop and store, 158 Main Street: alterations, for Mr. J. Kidd.

Dumfries.—Troqueer Tweed Mills: rebuilding, for Messrs. W. Scott & Sons.

IRELAND.

Farranford.—House. Mr. R. McCullen, C.E., architect, Minerstown, Clough. Mr. J. McAleenan (of Castlewellan, Co. Down), contractor (£780).

Passage West (Co. Cork).—Recreation Hall: completion. Mr. J. F. McMullen, M.R.I.A.I, architect, 30 South Mall, Cork.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

Any of the above specifications may be obtained from J. D. Roots & Co.

No. 29,830. Dec. 27, 1913.—Dated under International Convention Dec. 27, 1912. Edmund Altenkirch, Waldstrasse, Fredersdorf, Berlin, and Bernhard Tenchkoff, Fauterstrasse 12/13, Berlin-Friedenau, Germany. Central heating installations.

6,446. Sept. 12, 1914.—Michael Watson, 7 Prudhoe Street, Newcastle-on-Tyne. Water heater for hot-water circulating systems for heating rooms, buildings, and the like.

12,036. May 15, 1914.—Louis Rasch, 17 Sunny Bank, South Norwood. Gas burners and gas rings.

13,812. June 8, 1914.—Hermann Schudt, 46 Augusten Strasse, Munich, Germany. Device for facilitating the building up and displaying of variable mosaic designs formed by movable coloured pieces of glass or other transparent material.

14,489. June 16, 1914.—Dated under International Convention Dec. 1, 1913. Firm Farbwerk Worms, Otto Schifferdecker, Worms-on-the-Rhine. Grinding or crushing discs particularly applicable for grinding paints.

14,690. June 18, 1914.—August Finger, 4 Parkstrasse, Thorn, Germany. Fireproof plates for building purposes.

14,883. June 20, 1914.—Hans Erbe, Sodingen, near Herne, Westphalia, Germany. Ventilating fans.

15,366. June 26, 1914.—Firma Sucrofilter-und-Wasserreinigungs-G.M.B.H., 21 Bahnstrasse, Berlin-Schoneberg, Germany. Method of producing sterile drinking water.

15,551. June 29, 1914.—Dated under International Convention June 30, 1913. Sigurd Henriksen, 34 Seydlitzstr., Kattowitz, Ober Silesia, Germany. Method of and apparatus for the manufacture of hollow bricks or building blocks with internal spiral ribs.

15,844. July 2, 1914.—Matthaus Frankl and Firm G. Kuntze, Goppingen, Wurtemberg, Germany. Sectional radiator for heating buildings and the like.

18,165. July 31, 1914.—Dated under International Convention July 31, 1913. Heinrich Wehner, Langestrasse 1, Frankfurt-on-the-Main, Germany. Device for separating gases from hot water (mainly for the purpose of preventing corrosion of metal with which the water is brought into contact, as, for example, in hot-water heating installation for buildings).

18,354, 18,355. Aug. 7, 1914.—J. E. Hobbs, Keith Cottage, Red Down Road, Coulsdon. Drying, mixing, and agitating machines or appliances.

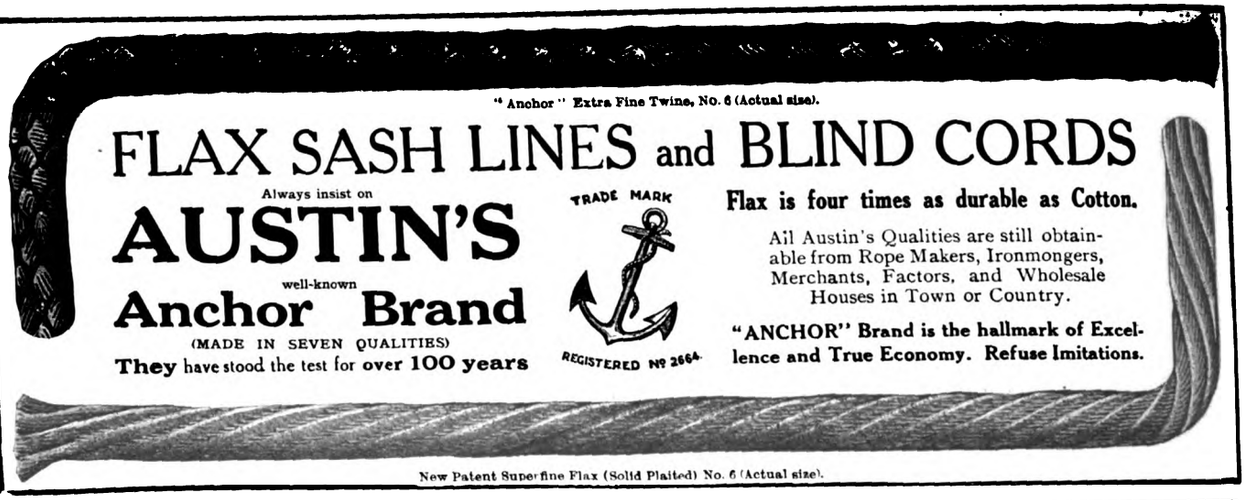
18,410. Aug. 7, 1914.—D. E. Reid, 26 Whitford Gardens, Mitcham. Mills for grinding pigments and the like.

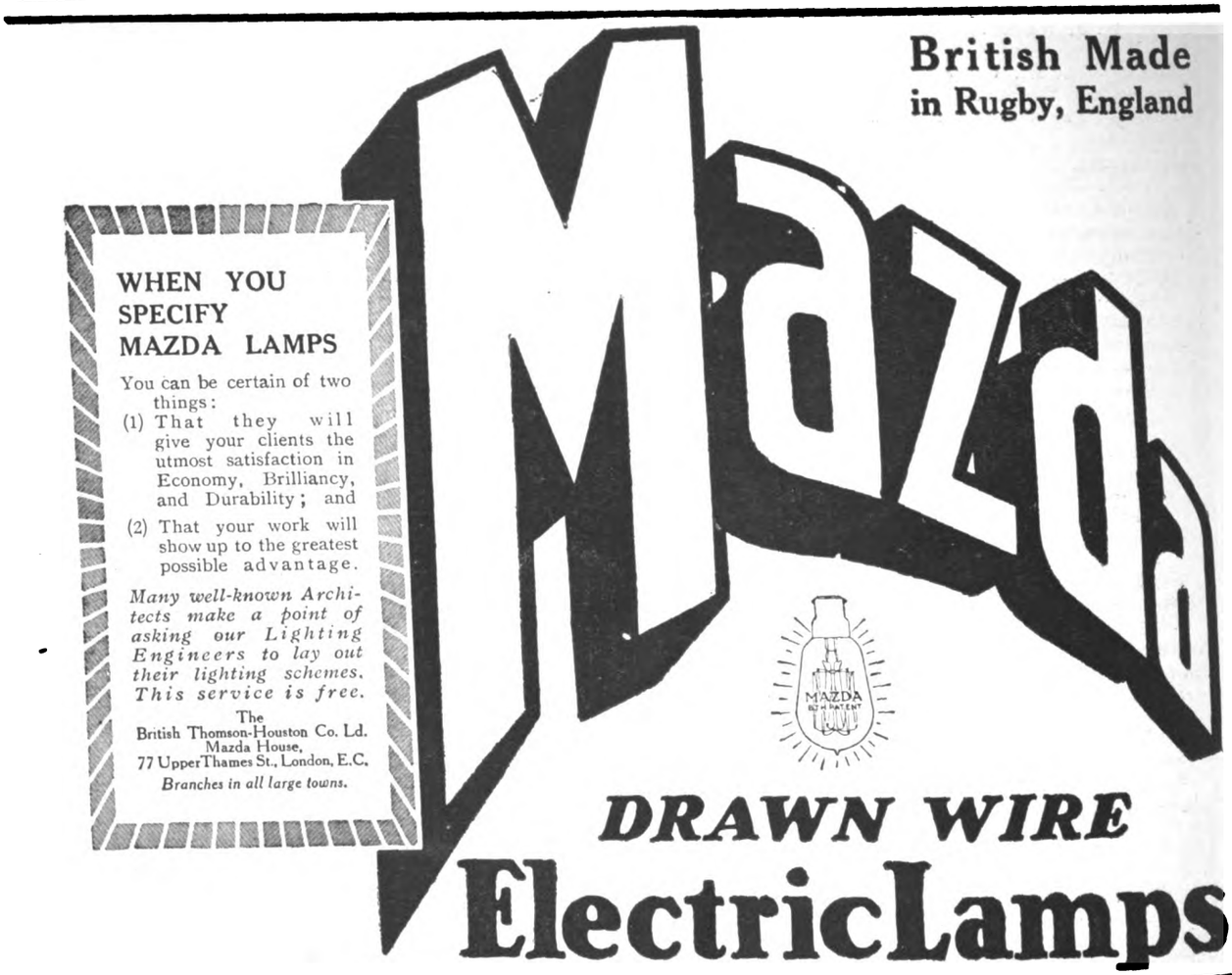
18,591. Aug. 12, 1914.—T. W. Panario, No. 18, 156 Queen's Road, Battersea Park, S.W. Taps or valves.

18,876. Aug. 20, 1914.—Dated under International Convention Aug. 18, 1913. A. C. F. Halford, "Turrawan," London Road, Clayfield, Brisbane, Queensland, Australia Apparatus for the reflection and diffusion of artificial light.

18,889. Aug. 20, 1914.—Dated under International Convention Dec. 9, 1913. Oel —— and Farbfilm A. G., Wadenswil, Switzerland. Manufacture of oil and oil-paint films.

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18,916. Aug. 21, 1914.—G. M. Gill, 107 Shooters Hill Road, Blackheath, S.E., and D. B. Donald, 7 Trossachs Road, East Dulwich. Apparatus for disinfecting water closets, urinals, and the like.

19,119. Aug. 27, 1914.—Charles Rumsby, 79 McLeod Road, Abbey Road, S.E. Means for automatically regulating speed of descent of roller shutters and the like.

23,993. Dec. 14, 1914.—S. H. Cashmore, Alvecote Grange, near Tamworth; Alexander McKay, High Carr House, Alvecote, near Tamworth; and H. Ridsdale, Kelfield Lodge, Streetly, Birmingham Tapering machine for wood and other materials.

24,547. Dec. 23, 1914.—A. J. Bauer, Syracuse, Onondaga, N.Y., and C. C. Annabel, 328 Broad Street, Waverley, Tioga, N.Y., U.S.A. Adjustable window screens.

60. Jan. 1, 1915.—Dated under International Convention Jan. 26, 1914. G. Y. O. G. M. Comte de la Poeze, Chateau de la Rabateliere, Saint-Fulgent (Vendee), France. Radiators for heating buildings.

949. Jan. 20, 1915.—Dated under International Convention Jan. 21, 1914. Bartolome April, Ragaz, Switzerland. Automatically registering measuring stave.

3,062. Feb. 25, 1915.—John Fothergill, "Oak Lea," Norton-on-Tees. Safety locking and latching device for lift gates or doors.

3,166. Feb. 27, 1915.—C. A. Christianson, 33 Timber Bush, Leith. Ventilating and draught inducing apparatus.

3,295. March 2, 1915.—W. H. Baxter, 71 Gelderd Road, Leeds. Improvements in or relating to stone-breaking and ore-crushing machines.

3,713. March 8, 1915.—J. M. Peterson, Lindisfarne, Harton, South Shields, and John Meredith, 11 Village Terrace, South Shields. Door handle locking device.

8,301. June 4, 1915.—William Newman & Sons, Ltd., and H. G. Newman, Hospital Street, Birmingham. Panic or emergency latches for doors.

20,603. Oct. 6, 1914.—Dated under International Convention Feb. 19, 1914. Henry Maddick, 123 Gipps Street, East Melbourne, Bourke, Victoria, Australia. Attachment to prevent theft of electric lamps or globes.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 16747, July 14, 1914.—Revolving doors. T. B. Colman, 54 King Street, Brighton.—This invention relates to revolving doors of the type having stationary or revolving soffits and a central wing, to the extremities of which are attached straight or curved end wings. This present invention consists in applying to a door of this type end wings which are arranged at right angles to the main wing. The door may have either a fixed or revolving soffit, but a fixed soffit is preferred. The invention also consists in the provision of a system of levers, located above the soffit, which act at all times to bring the door into its central or closed position. The system comprises an arm which is secured to the supporting spindle of the door, to which arm is connected a link attached at its other end to a pivotted lever. Fig. 1 illustrates a combination of levers for closing the door. Fig. 2 shows a modified construction of the closing mechanism. Fig. 3 illustrates a method of hinging the ground plate at each end. Referring to fig. 1, a revolving door having a central wing A, containing one or more swing doors B, and having also straight or curved end wings D, is supported on suitable bearings by a central spindle C, to which is secured by a set screw E an arm F pivotted to rods H hinged at L^1 to levers J adapted to swing about fixed pivot pins M. Secured to the ends L^1 of the rods J are springs K^1, which always tend to return the closing mechanism, and thus the door, to its central position, as shown in fig. 1. If desired, the springs K^1 may be enclosed in dash-pots for restraining the movements of the door; or the dash-pots may be carried between the levers J, or they may be attached to any other suitable part of the mechanism. Although the closing mechanism is shown duplicated in fig. 1, and this form is preferred, it is not essential. In fig. 2 a single spring only is used. It is fixed to pins on the ends of the arms J, as shown, and is carried above the horizontal level of the arm F to prevent fouling. The ground plate is normally secured to the undersides of the end parts X of the central wing A, and when the swing doors B are open the plate, being slightly raised above the floor level, constitutes a more or less objectionable obstruction. To overcome this difficulty the ground plate is made in halves, one of which is shown in fig. 3, and they are hinged to the

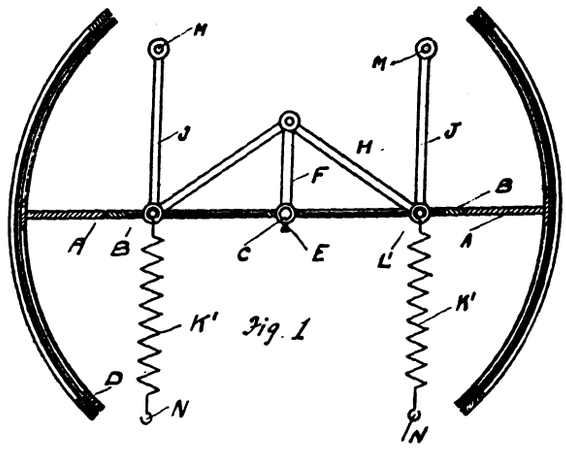


Fig. 1

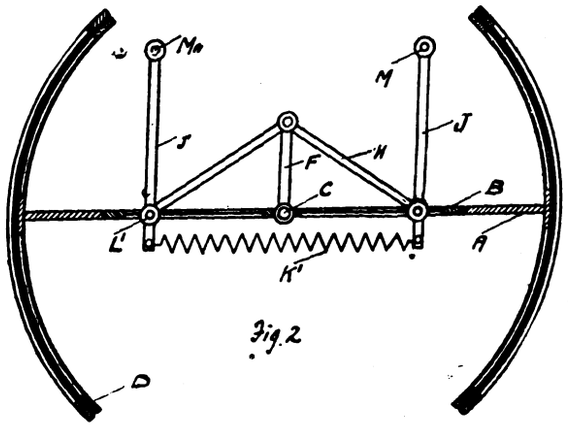


Fig. 2

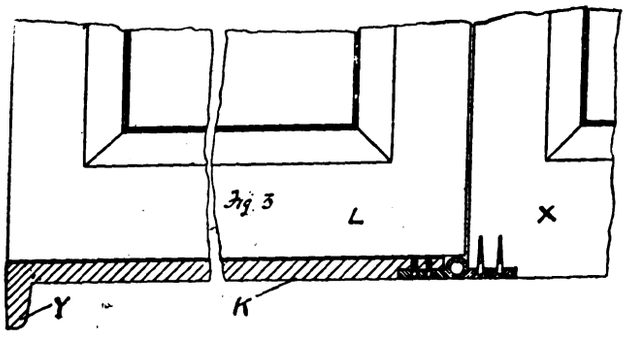


Fig. 3

parts X of the central wings. When the swing door or doors are to remain open, the door as a whole being secured against rotation, the halves of the ground plate or bar may be turned back to rest against the vertical faces of the stationary parts X of the central wing. The bottom pivot Y, about which the revolving door turns, is made in halves, one half being formed on each half of the ground bar.—July 14, 1915.

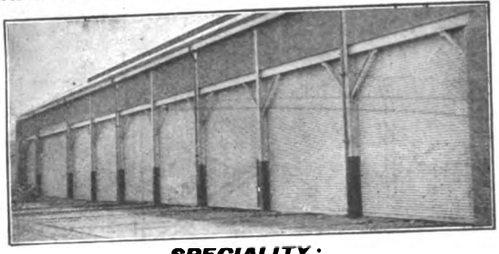
AT St. Helens last week Mr. A. W. Brightmore held an inquiry on behalf of the Local Government Board into the application of the Corporation for leave to borrow £15,000 for electrical works extension and the provision of additional plant. The application is rendered necessary by the demand for energy by firms engaged in war work. The original estimate was £14,000, but owing to the increase in the price of materials they had to ask for £15,000. The electrical engineer said they hoped that some of the works would benefit after the war by capturing German trade.

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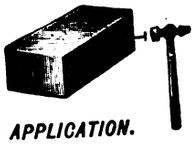
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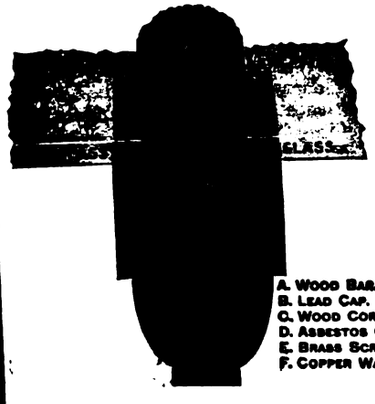
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THE ARCHITECT

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FORTHCOMING EVENTS.

Thursday, September 23.

Iron and Steel Institute: Autumn Meeting at the Institution of Civil Engineers (two days).

THE TRADES' TRAINING SCHOOLS.

IT is pleasing to know that the excellent work carried on in the Trades' Training Schools at Great Titchfield Street by the Worshipful Companies of Carpenters, Joiners, Painters, Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights, is being continued in spite of the war; although in all the classes the instructors report that the numbers have, during the last session, fallen off through the fact that many of the students have followed the example of the Director, Major H. Phillips Fletcher, and joined the Colours. Thus we are told that in the Carpentry class "the attendance at first was fairly good, but gradually fell off owing to several students enlisting in various regiments"; in the Joinery and Handrailing classes "the classes this year show a decrease in the number of students, and may be accounted for by some seven or more joining the Colours"; in the Masons' class, "I have the honour to report 40 per cent. of our last session students have joined the fighting forces of the Crown, and are doing good work"; in the Painters' class, "fourteen students of this class have joined the Colours, or are serving as special constables"; in the Plumbing class, "quite a number of the old students have joined the Army and Navy"; in the Smiths' class, "most of the students have been working on munitions of war, as well as myself (the instructor)"; in the Stone Carvers' class, "several of the students joined the Army on the outbreak of war"; in the Wood Carving class, "by the time Christmas was reached all students of military age having left, only juniors were at work."

During the absence of Major Phillips Fletcher at the Dardanelles in the past session the director's duties have been undertaken by Mr. Banister Fletcher, F.R.I.B.A., and despite the general lower average of age amongst the students and their lessened numbers it is evident from the photographs published in the report of the work done, some of which we reproduce, that the quality of the performances has been fully maintained. Indeed, in one respect, as to which our remarks in past years have been condemnatory, there is a marked improvement, and that is in the character of the designs which have been executed. It would appear that there has been a little more guidance or a little more restraint of the knowledge-lacking efforts of the students, which has been of benefit to them in their appreciation of design, whilst in no way lessening the value of their instruction in craftsmanship.

Some idea of the character of the instruction given in the Trades' Training Schools may be gathered from the brief *résumé* of the work in progress given by Mr. Banister Fletcher at the meeting for the distribution of prizes held at Carpenters' Hall on December 2, 1914. Mr. Fletcher said:—

The Committee and Court decided to postpone the opening of the Schools until October 26, and consequently they have been open only for about a month. The Joint Committee will be glad to know, therefore, that the Schools have met with considerable success up to the present, notwithstanding the unfortunate conditions at present prevailing, some 120 students being enrolled.

Carpenters.—Mondays, Wednesdays, and Fridays are devoted to instruction in this class. The work now in hand includes an oak ventilating turret, half-timber porch, mansard roof with dormer, and various kinds of joints.

Joiners and Handrailers.—This class meets on Mondays, Tuesdays, Wednesdays, and Fridays, and there are at present fifteen students on the register. The subjects now being worked out include various forms of handrailing and wreaths, circle on circle door frame, mahogany doors and dome, honours board, and other works. George Austin, age seventeen, a student of this class, was awarded a gold medal for a mahogany panelled niche. This is the first occasion on which this distinction has been conferred on the Joiners' class. The same model also gained the Gold Medal at the open exhibition held at Carpenters' Hall this year.

Masons.—This class is open two nights in the week—viz., Tuesdays and Fridays. This year's work consists of a model of fan vaulting, pendentive with enriched angles and panelled dome over, with Gothic window, a small fountain, and various turned balusters, and terminals in stone, alabaster, and marble.

Painters.—Instruction is given in this class on Tuesdays and Fridays, and the Painter Stainers' Company have given practical proof of their interest in the work being carried on in the class by the erection of a series of rails for carrying the doors and other woodwork upon which the students practise.

Plasterers.—A satisfactory number of students has been enrolled in this class, which meets on Wednesday and Friday evenings. The work now in progress includes the following:—Cornice with modillions, enriched Adam's cornice, fluted pilaster, and two geometrical ceiling panels.

Plumbers.—This shop is open as before on all five nights of the week, and the students are making samples of lead flats and various joints, lead bossing, and an ornamental gutter front.

Smiths.—The Blacksmith's shop is open on three nights of the week—namely, Tuesday, Wednesday, and Thursday, and the following fittings are now being wrought:—Hall lantern, weather vane, with copper ship, grille, and heavy gate hinges.

Stone Carvers.—This class is held on Wednesday and Friday evenings, and the students are taught to form their models in clay as a preliminary stage to the actual carving in stone. Besides modelling, some of the students are at present engaged upon carving key blocks and panels.

Life Class.—This studio is open for instruction one evening in the week—viz., Thursdays, and the students take as keen an interest in the work as in former years.

Tylers and Bricklayers.—This class is held on Mondays, Wednesdays, and Fridays, and seventeen students are enrolled. The junior students are receiving instruction in full-size setting out and plain gauged work, and the senior students are executing work in rubbed brick—*e.g.*, an octagonal sun-dial, ornamental panel, circle on circle arch, moulded Gothic arch, a brick cornice, and other works.

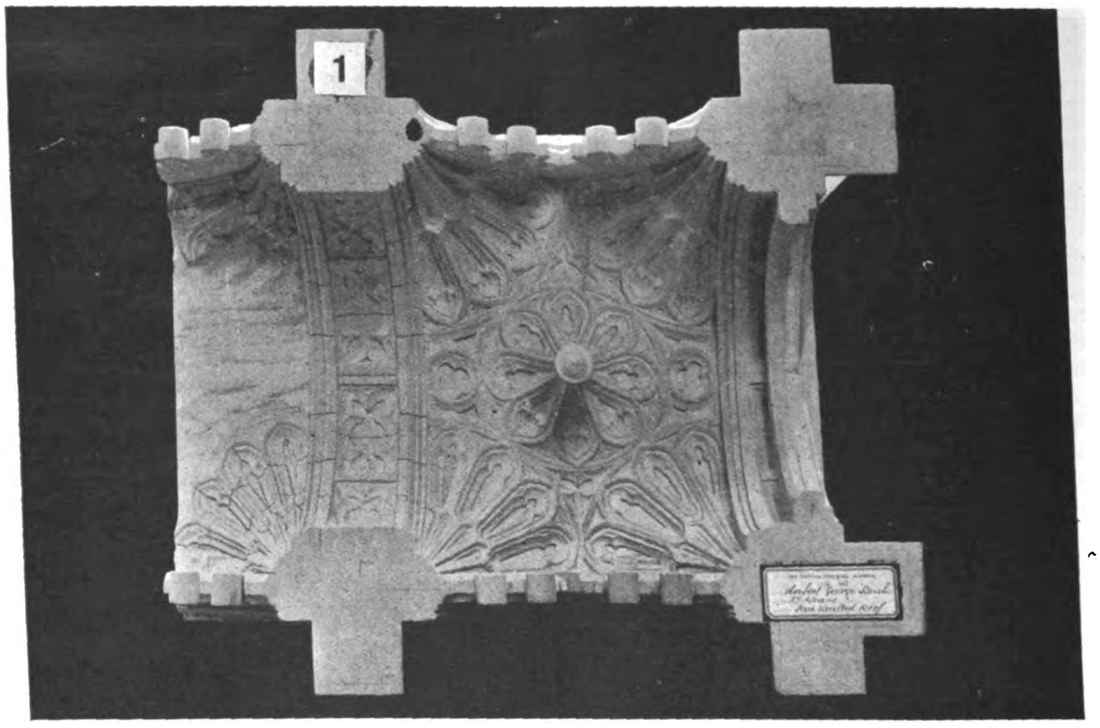
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The Tylers' and Bricklayers' Company show a keen interest in the welfare of this class, and we are indebted to Mr. Newson for his practical advice to the students.

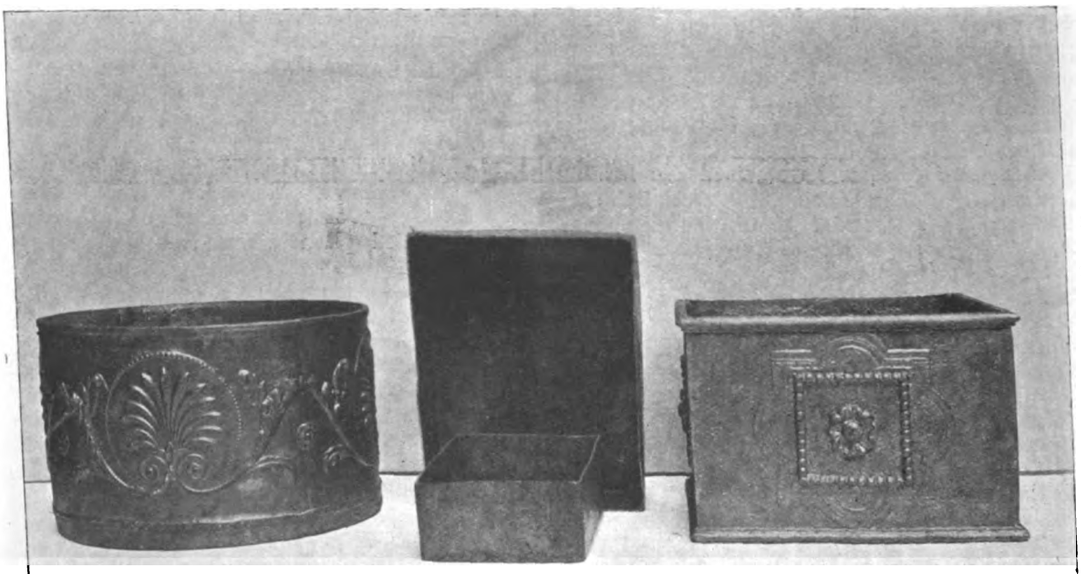
Wheelwrights.—This class meets on Tuesdays and Fridays, and there is a fair number of students on the register. The works in hand this session include rear section of motor box-van, motor wheel, tailboard, pair of double bar shafts, &c.

Wood Carvers.—Monday, Tuesday, and Wednesday evenings are set apart for instruction in this class. Most of the students are beginners, and are consequently engaged upon elementary work, such as shaded drawings from the cast, &c.

Electricians.—This shop is open on Mondays and Fridays, and the number of students upon the register at present is fourteen. The work this session consists of practical wiring in the Kalkos and Stannos systems, screwed tube casing, jointing, &c.



SPECIMEN OF WORK DONE IN THE MASONS' SHOP.



SPECIMEN OF WORK DONE IN THE PLUMBERS' SHOP.

The opinion of the Judges who examined the specimens of work produced in the previous year is expressed in the following extracts from their reports:—

Carpenters.—Considering the circumstances and the

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youthful age of the exhibitors, the Judges consider the work executed to be of very good character.

Joiners.—Many of the exhibits were left in an unfinished state owing to several of the students being detained on overtime work.

The Alexander Howard Medal has this year been awarded to G. Austin for an excellently executed honours board in English oak.

Masons.—The Judges were much struck with the excellent character of the exhibits, but were of opinion that in future the same should be executed on a larger scale and the joints shown.

Painters.—Although, owing to the war, the number of students was smaller than in previous years, and the amount of work to be adjudicated upon consequently less, there was a marked improvement in the quality of that exhibited. Violent colouring in painted work has been avoided, and more care taken in the preparatory processes; the examples of graining were quiet in colour and showed care and skill in the execution, whilst the specimens of sign writing exhibited a distinct improvement on that of previous sessions.

Plasterers.—Very good examples were exhibited in this shop, and the Judges experienced some difficulty in separating the prize-winners.

Plumbers.—This shop maintains the excellent record of past years. Many good examples of lead burning and lead casting were exhibited. The number of students, however, owing to the war, is below the average.

Smiths.—The exhibits in this shop were few, owing to the national crisis, but the workmanship maintains its very high standard of excellence.

Stone Carvers.—Some good examples of carving have been executed, and the other works show considerable promise.

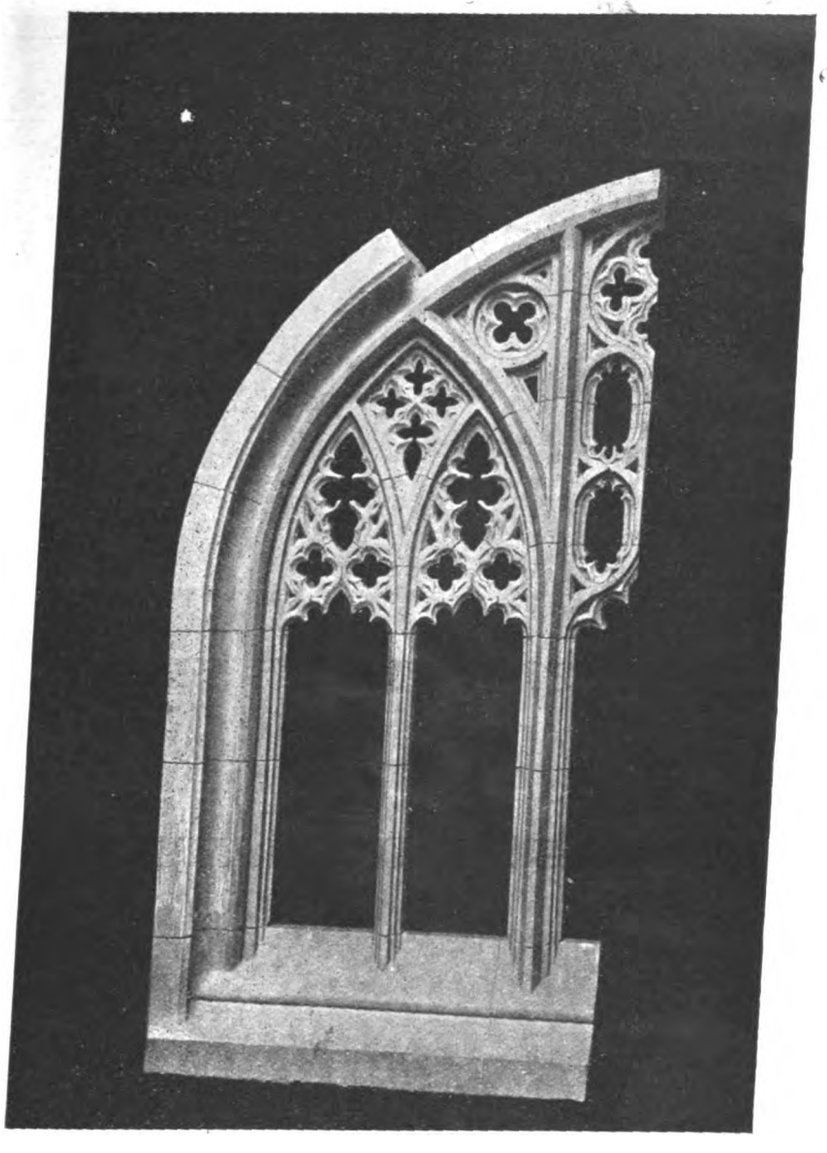
Life Class.—The work of this class reflects great credit on all concerned, and the Judges were very pleased with the progress that has been made.

Tylers and Bricklayers.—The Judges are pleased to see that the high standard of excellence is maintained in this class, and that no works fall below the average submitted in recent years.

Wheelwrights.—The exceptional demands made by the war on this particular trade have affected the Wheelwrights' Class perhaps more than any other in the school. The session opened with about half the usual number of students, but the attendances have been quite up to the average. The number of exhibits is limited, the work having been produced entirely by apprentices of fifteen to nineteen years of age. Notwithstanding this the quality of the work is maintained, and does credit to those engaged in it.

Wood Carvers.—Most of the exhibits in this class are of an elementary character, and consist of drawings from the cast, which show excellent observation and study. The Judges were very pleased with the examples of wood carving and modelling exhibited.

Wiremen.—Many of the old students of this class,



SPECIMEN OF WORK DONE IN THE MASONS' SHOP.

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in common with the other classes, have answered their country's call, and consequently the number of exhibits is below the average.

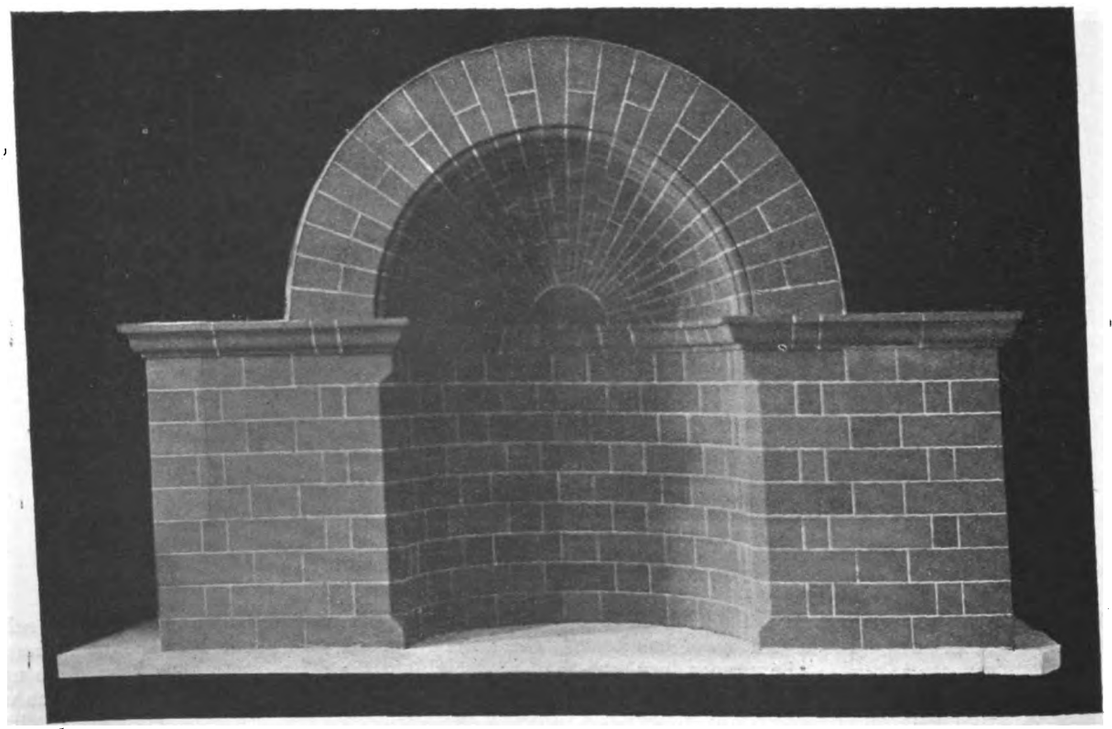
The Judges are much gratified with the work executed, which is of a practical nature and does great credit to the class.

We may conclude our notice of the past year's work in the Trades' Training Schools by expressing an agreement with the following passages in the speech of the Dean of St. Paul's at the prize distribution:—

I believe that the work that the Companies are doing in these schools is a work of national importance, a work of the utmost benefit to the English people, and I trust that the example that they are setting in these schools may be more widely followed through the length and breadth of the land, so that in the future this country may be distinguished, not only for the enormous figures of its output in exports and imports, but in the artistic excellence and beauty of the work that English workmen turn out, because I verily believe that the English



SPECIMEN OF WORK DONE IN THE STONE CARVERS' SHOP.



SPECIMEN OF WORK DONE IN THE TYLERS' AND BRICKLAYERS' SHOP.

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SPECIMEN OF WORK DONE IN THE WOOD CARVERS' SHOP.

people are inferior to none in their capacity for turning out, not only works of utility, but works of beauty.

I have travelled a great deal in various parts of Europe, and I have never seen anything to surpass, or even to equal, the most beautiful of our English cathedrals. I also know something of the literature of most of the great European nations, and I think that we may fairly claim that the great classics of English literature are equal, or superior, to those of any other nation. I will never believe that the English people are inferior in artistic gifts to any other people. All that is needed is due encouragement to make the workman feel that his work is worthy of putting the best he has in him into it.

I earnestly hope that in this century, after peace is fully restored, when we are able to turn our attention to the arts of education, and to forget the terrible tragedy which we now have to deal with, that we shall face these problems with increased energy and increased determination to make the future of this country even more glorious than the past, and I believe that the work that the City Companies are doing in these schools will be of the utmost advantage, and that it is work that may be—nay, will be—imitated and followed, as I have said, through the length and breadth of the country.

NOTES AND COMMENTS.

THE Council of the Royal Institute of British Architects desire to make it known to the public that it is not in accordance with professional etiquette for architects to advertise for work. Members and Licentiates of the Royal Institute are not permitted to advertise.

IAN MACALISTER, Secretary.

9 Conduit Street, W.

The above advertisement now appears in the columns of the daily Press, following the well-known announcement of the Stock Exchange Committee of similar import. This is a step in the right direction. It has long been part of the unwritten code of etiquette of the architectural profession that "it is not in accordance" therewith "for architects to advertise for work," and for some time past it has been the practice of the Council of the Royal Institute to admonish any of its members and Licentiates who may have transgressed. It is well therefore that the public should know that such etiquette exists amongst architects, and the announcement that "Members and Licentiates of the Royal Institute are not permitted to advertise" implies disciplinary action by the Council against offenders. We have said that the present announcement is a step in the right direction.

The next step is of equal importance. It is for the Council to define what they and the members of the Royal Institute understand by "to advertise." The dictionary definition is "to turn one's attention to; to inform; to give public information or announcement of." If by advertising is meant the insertion of announcements in the public Press for which payment is made by the advertiser, the issue is clear and unmistakable; but if the interdicted practice is to include all and every effort "to turn one's attention to," a very much wider field of activity in attaining notoriety is forbidden.

Such advertisements would indisputably include the exhibition of drawings or models in the annual exhibition of the Royal Academy. There can be no dispute that this exhibition is a trade show, on equal terms with the Leipzig fair or any Agricultural Hall trade exhibition. Its object is to enable certain craftsmen to sell the wares they have produced and to get orders for future productions. The Architectural Room is as much a trade show as the rest of the exhibition, and one of the most profitable means of advertising open to architects. It is both cheap and remunerative. It cannot be asserted without hypocritical cant that inclusion in the show is a hall-mark of superiority, or that the drawings exhibited are the selection of the best, and only the best, of the architectural design of the day. In the first place much of the best is never sent to the Royal Academy. Next, the fact of a drawing being hung is no evidence of its superiority, for fortunate fitness in the size of frame is well known to be the determining factor for inclusion in preference to many others of equal and often superior merit.

As long as members of the Council of the Royal Institute avail themselves of the cheap and profitable method of turning the attention of the public to their work afforded by the Architectural Room of the Royal Academy they cannot in all decency draw distinctions "on the merits of the case" between other methods.

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The merits of the case, when decided by a council or committee without a clearly defined standard, means inconsistent and variable decisions, according to the fortuitous composition of the judiciary of the moment. It leads to such pitiable instances of tweedledum and tweedledee as is seen in the recorded resolutions of the Council of the Royal Institute that it is "reasonable" for an architect to put his name on a completed building, but "undesirable" to exhibit it "in front of buildings in course of construction."

There can be no doubt that the present war conditions have afforded an opportunity to the Government for drastically reducing the extravagant and unprofitable expenditure of the Land Valuation Department. It is quite true that much of the work in connection with the "provisional valuations" has been done, but it is also known to us personally that these have not been by any means completed, and it is in accordance with the usual practice in over-staffed Government departments that those employés not "on the permanent staff" have been steadily engaged in the congenial occupation of spinning out their job. Hence the varied accounts in the daily Press. Thus the *Morning Post* says: "The Land Union, which Mr. Lloyd George's land valuation scheme called into existence, had no definite information to give on the subject. For some time past the question of retaining these officials has been discussed, and since the war began the matter has more than once been brought before Parliament. The Land Valuation Department was an unpopular one. It was created in order to prepare valuations which were to serve as a basis of future land reform. Complaints were made from time to time of the cost of maintaining the Department. It gave employment to about 1,700 persons, who included a chief valuer, a deputy chief valuer, fourteen superintending valuers, and a host of assistants and clerks. From the first it was understood that the work would only be of a temporary character, but many members of the staff regarded themselves as Civil Servants, and believed that their services would be retained. The Department had completed much of its technical work, and it is suggested that the Retrenchment Committee, over which the Chancellor of the Exchequer presides, had this fact in mind in considering the question of effecting economies in Government offices.

"It does not follow that because these officials of the Land Valuation Department have been dispensed with that the Department has been done away with entirely. Nor must it be concluded that the valuers, technical assistants, and clerks will be thrown out of employment. The step has been taken in the interest of economy necessitated by the war. The discovery was made that, while the staffs of some Departments of State were overworked, a large number of men in the employment of the Government were engaged on work which was not pressing, and could well be postponed. It is a fact that many of the men employed in the Land Valuation Department were not overburdened with work, and it is suggested that when the notice given to them to terminate their service has expired they will find employment in other departments, especially those which the war has called into being. There is great pressure in the Munitions Department, where men are working seven days a week and eleven hours a day, and at the War Office, where overtime is the rule and leave has been suspended."

The *Daily Express* announces that the scrapping of the Land Valuation Department—the costly bureau created by Mr. Lloyd George's Budget of 1909 for the collection of a handful of land taxes—has begun. No fewer than 1,700 employés, most of them professional men, have either received, or are about to receive, notice of dismissal on the ground of "retrenchment."

The *Evening Standard* gives the following explanation as received from an authority in intimate touch with the Government:—

"It may be taken that no injustice will be done. This is simply a commonsense move in the interests of economy. For the bulk of these men there is very little indeed to do. Retrenchments have to be made. Take the men at Armaments Building, the War Office, and in other departments. They are working overtime seven days a week, and leave has been stopped owing to the great pressure. Here is the land valuation staff with little of a pressing nature on its hands. I think you will find that automatically the bulk of the men affected will be drafted where they are wanted, and that is all there is in it. Hundreds of similar cases have arisen, not only in connection with Government employés, but in businesses all over the country, and men are finding themselves everywhere doing work to which twelve months ago they were strange. It is certainly not a matter political in any sense, or to make political capital out of. The men thoroughly understand the position, and, although dismissal naturally came as a shock, on reflection the knowledge that they will be wanted elsewhere must relieve their initial anxiety."

At the offices of the "Land Union," which organisation has been the antagonist of the Valuation Department ever since its establishment, Mr. Kenderdine, in a talk with a representative of the *Pall Mall Gazette*, deprecated most strongly any attempt to draw any other conclusion from the reductions than that they indicate a reasonable and commonsense war policy.

The fact is (he said) much of the technical work of the Valuation Department is approaching completion, and men can be spared for other work. I have no doubt that the vast majority of these men will be employed on Government war work. They will certainly be welcome at the Munitions Department, where all hands are working eleven hours and more a day. The strain is very great, and anything that is done to relieve it should be welcomed. As far as that goes, I may say that three-fifths of the Land Union staff are away on war work of one kind or another, and of those remaining the majority are giving all their spare time to it.

A critical examination of the air in the City of London was begun by the Corporation last year. A large rain gauge was placed on the roof of the City Mortuary in Golden Lane and the rain water from a known area of surface is collected monthly and analysed. Similar observations are being made by the London County Council on the Thames Embankment.

Although the presence of much impurity in the atmosphere has long been known, these are the first definite and tabulated records. Dr. Howarth, the City medical officer, states that in December alone the amount of deposit registered as falling in the City amounted to 54½ tons. Of that mass of dirt nearly 34 tons were soluble, and included the sulphates, ammonia and chloride, and 20½ tons were insoluble, and consisted of tar, carbon, and grit. No dense fog has as yet been tested.

The examination is being continued this year.

A paragraph is going the rounds of the Press that for some time past a number of London architects, at the request of the Dean and Chapter and the surveyor of the fabric, have undertaken the duties of keeping a strict watch on St. Paul's Cathedral, with the object of extinguishing fires that might be caused by explosives dropped on the building from enemy aeroplanes or Zeppelins. This voluntary staff is to be increased, and more architects are being invited to offer their services to watch for one whole or two half-nights a week. The need for more help is being brought to their notice through the professional organisations. In order to establish a complete system of watch and ward over one of our greatest national monuments about a hundred and twenty volunteers are required during the winter months, in addition to those who have been silently keeping watch—unknown to the public—during the short nights of the summer that is passing.

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The architects of Sheffield are taking another means of "doing their bit" through the Sheffield Society of Architects and Surveyors, who have taken the initiative in a scheme for the utilisation of the many vacant plots of prospective building land in the city that should prove of considerable value in conserving and increasing the country's food suplies. The prime condition of success is a sympathetic attitude on the part of the authorities, national and local. So far as the first is concerned this is already assured, and the co-operation of the Sheffield City Council has been invited, and further action in the matter awaits the return of the Lord Mayor, who is at present enjoying a brief holiday.

Briefly, the proposal is that as far as practicable—having regard to legal and other restrictions—the land in the city at present awaiting building development shall be put under cultivation for the raising of vegetables. It is, of course, impossible to estimate the area of land thus available, but it is very considerable, and the possible yield should enormously increase the supply of vegetables, the food value of which the English people are, happily, learning to appreciate.

In reply to a suggestion on these lines sent from Sheffield, the President of the Board of Agriculture expressed warm approval, and forwarded copies of the numerous leaflets the Board has had specially prepared outlining a scheme for the formation of "Village War Food Societies"—though the information and advice is applicable to larger organisations than suggested by the title. Other leaflets give useful suggestions to allotment holders respecting the autumn treatment of land, potato growing, and many helpful hints for the cultivators of even small gardens.

The Sheffield architects have intimated to the Lord Mayor their willingness to co-operate in the development of such a scheme. One of the most practical and effective forms that co-operation will take is to advise their clients who have vacant land to let it out in allotments at nominal rentals, subject to surrender in case of its being required for building, though this requirement is an extremely unlikely contingency during the continuance of the war.

The way in which building work is now tied up is well illustrated by a report of the Housing Committee of the Corporation of Dublin, in the course of which it is stated:—In consequence of the refusal of the Treasury to sanction any advance of money in the present circumstances to meet the cost of the erection of houses for the working classes beyond what is necessary to complete the Beresford Street, Church Street, and Trinity Ward schemes, we asked the City Treasurer to negotiate, if possible, in the open market for a loan of £24,000, the sum necessary for the proposed buildings on the Ormond Market site. We regret to say that the efforts of the City Treasurer, though up to a certain stage they promised to have a favourable result, ultimately proved unsuccessful, owing to the increased stringency brought about by the issue of the second War Loan. The refusal of the Treasury to advance the necessary money, and the impossibility of obtaining it in existing circumstances, except on very onerous conditions, in the open market, is a very serious matter for the future of the housing problem in Dublin, and will, if both of those unfavourable conditions continue to operate, completely paralyse our efforts to bring about a betterment in the housing conditions of the working classes. The situation brought about by the refusal of the Treasury is one that inflicts considerable hardship on the Corporation, as they will have to shoulder a liability of the repayment of a loan of £12,103 for what would prove, if allowed to remain derelict, an entirely unproductive site. To minimise in some degree this very disadvantageous situation, and to provide a portion of the housing accommodation so badly needed, we beg to recommend that we be authorised to include in next year's estimate a sum of £8,000 to enable a portion of the site to be built upon.

Among the sculptured stones which are about to find a permanent home in the new museum at Whithorn is the "Inscriptive Stone Pillar," which had its more modern position about a quarter of a mile from the burgh, on the road to the Isle of Whithorn. Its position there, however (writes a correspondent of the *Scotsman*), was wholly capricious, it having been brought from the Mains Farm, which is partly within the precincts of the burgh, and where in all probability it served the purpose of a burgh boundary mark, as other stones can be traced in the environs—uninscribed, however—performing a like function. There is no saying where its primitive site has been, or how far the distance of its transference. It is of great antiquity. The stone is of the hardest variety of the prevailing rock of the district, and it is of parallelogram form. Its height, measured from the greensward level, or height above ground, is 3 feet 2 inches, and its girth 3 feet 10 inches, the broad side being 1 foot 2 inches, and the narrow 9 inches. The hieroglyphic figure upon the stone consists of two concentric circles, of which the interior is 11 inches, and the exterior about 1 foot 2 inches in diameter. Within the inner circle is inscribed a cross, formed of lines drawn double—like a convex lens—so as to exhibit four distinct double convex lenses, of which two, placed end to end, make a diameter, the four thus forming two diameters, passing at right angles to each other through the centre of the circle. These two concentric circles stand upon a sort of pedestal made of two lines drawn double, which are distant from each other at the base, or widest part, 6 inches, and at the top, or narrowest part, where the concentric circles rest, about 1½ inch. The height of this pedestal is 8 inches, which, being added to the outer or largest circle (1 foot 2 inches), makes the whole height of the hieroglyphic figure 1 foot 10 inches. Under the concentric circles, and partly across the pedestal, are the words *Locili Petri Apostoli*. The last two words present no difficulty, and the common people style the stone that of the Apostle Peter, but the first is not a little puzzling. From what has been brought to light of late years, however, the original inscription upon the stone seems to have been—*Hic est locus Petri Apostoli*—"Here, or this, is the place of Peter the Apostle." When it is understood that in such inscriptions *locus* is frequently translated as if it were *sanctus*, the meaning of the sentence appears obvious, the translation thus being: "Here, or this is the Church of the Apostle Peter." This stone, probably, originally marked one of the Chapels of Ease—Cruggleton, Isle of Whithorn, Kirkmaiden, Kirkmadrine, &c.—to the renowned monastery at Whithorn, erected in the reign of David I. There is a hole at the top of this stone 8 inches deep and 2 inches in diameter.

At the annual meeting of the Cumberland and Westmorland Antiquarian and Archæological Society Mr. R. G. Collingwood gave a report of the exploration work carried out on the site of the Roman fort at Ambleside. This work, Mr. Collingwood pointed out, has this year naturally been on a much smaller scale than in the two previous years, but the results have nevertheless been of great interest. At the end of last season it was discovered that underneath the second century A.D. fort lay another, dating from the century before, and this year's digging has been devoted to exploring this early fort. We are now, Mr. Collingwood said, in possession of its dimensions, and have determined the general character of the defences. Whereas the later fort lay east and west, the earlier lay almost north and south across the eastern end of the later, projecting beyond it some 60 feet on the north. It was defended by a double ditch, varying in width from 25 to 40 feet according to the distance between them, and 4 or 5 feet deep. In the bottom of these ditches oak timber was found, which suggests that a palisade was also used. Inside these defences was a rampart, whose foundations, consisting of a strip of hard stone paving, have been discovered in several places.

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The north end of the early fort, projecting beyond the limits of the later fort, has received most attention this year. The ditches run right up to the knoll of rock, which stands prominently up in the western part of the field, and this suggests that the rock was regarded as an annexe to the early fort, serving the purpose of a corner tower. Eastward from this point the ditches stretch across to the modern road, a distance of 100 yards. We have found near the centre of this line a pavement thickly covered with charcoal, which may represent the floor of a gate-house; but the gate has not been definitely located. On either side of this pavement ditches have been found running for a short distance southward at right angles to the main defences, and intended possibly as a flanking defence for the gateway. Several trenches have been dug on the other sides of the early fort, to fix its limits; and a certain amount of pottery, datable to the first century A.D., has been discovered. One large Samian dish, found in the bottom of the early ditch, is almost complete. Two bronze coins have turned up, one of Domitian (the Emperor under whom the early fort was probably built), and one of an Antonine Emperor of the second century; also a fourth-century silver coin in a well belonging to the later fort. The filling in of the trenches dug this year is expected to last about ten days, and will be begun immediately. The large buildings, uncovered last year, will remain open as before.

COMPETITION NEWS.

YORK.—The conditions of the city of York town planning competition are under consideration by the Council of the Society of Architects with a view to amendment. Members are requested to communicate with the secretary before entering for the competition.

ILLUSTRATIONS.

ALLS IN CHAPEL, HOLY CROSS RETREAT HOUSE, LIMPSFIELD.

THE stalls shown in the illustration, together with a screen dividing off the west end of the chapel to form a narthex, are the first section of the fittings presented by a friend of the community who intends to complete the furnishing by the gift of a reredos.

Built as an addition to a house of no architectural pretension by a former owner, the large room now used as the chapel of the Sisters of the Holy Cross was of proportions which rendered its adaptation to its new destination a problem of considerable difficulty. With a floor space measuring 45 feet by 30 feet, and a total height of 15 feet, diminished in appearance by a heavy coved ceiling, the effect was decidedly depressing, and an endeavour has been made in the design of the fittings (especially of the reredos) to counteract so far as possible this suggestion.

The work has been executed in oak by Messrs. Dart & Francis, of Crediton, according to the designs of Mr. J. Standen Adkins, architect.

It may be of interest to mention that a tender had been invited from a Belgian firm, and that the whole of the working drawings were at their works for estimating when the approach of the Teutonic invader was reported, and they were despatched for England just before the occupation of the city, arrived safely, and were used for the actual work.

CONVENT OF ST. MARY OF NAZARETH, EDGWARE.—NOVICES' DAY-ROOM AND DORMITORY.

THESE buildings occupy a portion of the site which in the late Mr. James Brooks' original plan was devoted to a large refectory, but as a vaulted chamber of moderate size designed for a different purpose has long been appropriated to this use, and has proved adequate for the requirements of the community, it was thought best to erect the new buildings for the accommodation of novices in this position. The doorway intended to give access from the conventual buildings to the refectory was partly built with the former work, and has been completed with some small modifications to form the entrance to the day-room, which occupies the ground floor. The novices' dormitory is approached from the upper corridor, and is divided into cubicles by wooden partitions. The upper floor is of concrete reinforced with Hy-rib. The work has been carried out by Messrs. E. A. Roome & Co., of Crown Works, Hackney. The architect was Mr. J. Standen Adkins.

COTTAGE AT WESTCLIFF-ON-SEA.

THIS plan, though on a site of awkward shape, was arranged to obtain the view southward over the Thames estuary and the Kentish shore afforded by an elevated position near the cliffs.

Externally the walls are white rough-cast; the roofs are of Tucker's dark hand-made Loughborough tiles. The chimney-pots are tarred black. The external oakwork and most of the internal woodwork was stained with "Solignum."

The builder was Mr. F. Barker, of Hadleigh, who executed the work under Mr. A. C. Kemp, the architect.

"THE GRANGE," BEDDINGTON.

THIS house was planned with a south-eastern aspect, on a site sheltered from the north by well-timbered rising ground.

The walls externally are of white rough-cast, with chimney stacks of hand-made Sussex stocks. The roofs of old tiles, collected from various parts of the county. Mr. A. C. Kemp was the architect.

HOUSE AT PURLEY.

THIS house has been recently erected, with hollow walls in dark Sussex stocks. The oak beams and timbers were specially cut from the Sussex woods, and framed together on the site. The roofs are of Warner's antique hand-made tiles.

The builder was Mr. F. Richardson, of Croydon, and Mr. A. C. Kemp was the architect.

COOMBE COTTAGE, WENDOVER.

THIS cottage is situated at the foot of Coombe Hill. The site has a very extensive view over the Vale of Aylesbury. The house is arranged to give as much accommodation in the rooms on the ground floor as possible.

The walls are faced with multi-coloured red bricks, and the roof covered with sand-faced red and brown tiling.

Messrs. H. J. & A. Wright, of Great Missenden, were the builders, and Mr. Ernest G. Theakston, F.R.I.B.A., the architect.

THE Architectural and Archæological Society of Durham and Northumberland held their second meeting of the year last week, when a visit was paid to the neighbourhood of Morpeth. The party first inspected Whalton, Bolam, and Hartburn churches. Mitford Church and Castle were passed on the return journey to Morpeth. The party next visited Newminster Abbey, a house of the Cistercians, the ruins of which have recently been partly excavated by Mr. George Renwick, who pointed out the discoveries which he had made, including the arcade of the cloisters and several tombs.

A NEW school erected in Calder Street, Govanhill, Glasgow, by the Govan Parish School Board to replace a school built forty years ago, was formally opened on the 3rd inst. The main buildings consist of three storeys. There are twenty class-rooms on the ground and first floors, accommodating fifty scholars each. On the top floor, which is to be devoted to supplementary work, there are nine class-rooms, each accommodating forty scholars, and two laboratories. The buildings are planned in a style which facilitates easy administration of the school work. Entrances for boys and girls are placed at either end, giving access to a spacious and well-lighted central hall, off which the class-rooms open. A doctor's room and dressing-room for the children are provided on the entre-sol. All the class-rooms are airy, lighted to give left-hand lighting, and fitted with dual desks in the junior department and single in the supplementary. Externally the buildings, which are of red sandstone, are in the Renaissance style. Mr. Andrew Balfour, F.R.I.B.A., Glasgow, was architect.

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SIR CHARLES BARRY, R.A., F.R.S., 1795-1860.

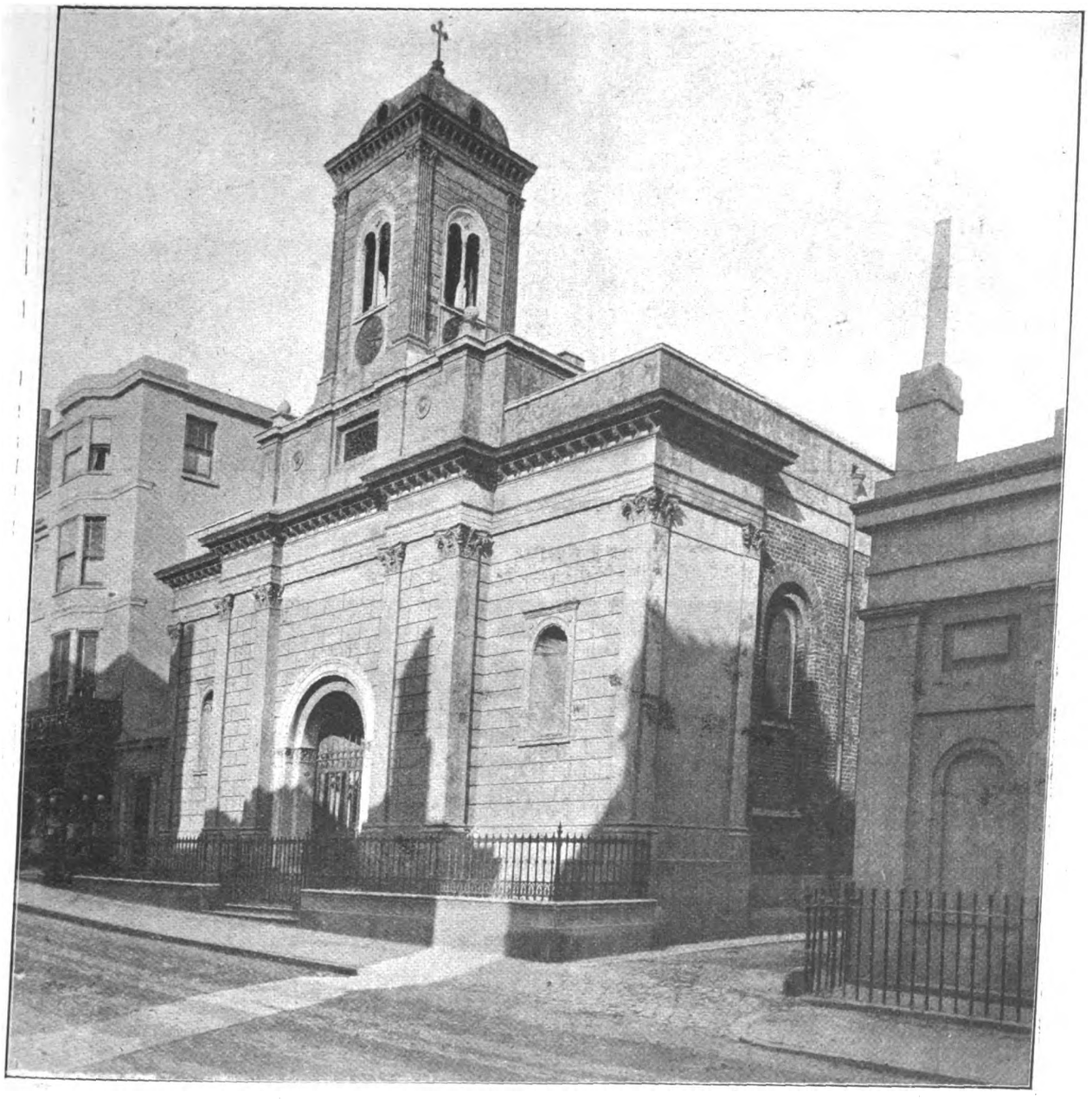
By ALBERT E. BULLOCK, A.R.I.B.A.

(Continued from last week.)

THE premiated plans in the competition for the Reform Club were in the names of Charles Barry, G. R. Cockerell, Blore, and Sidney Smirke, an account of which is given in the *Civil Engineer and Architects' Journal* of January 1838, from which we give the following extract: "Independent of other advantages, Mr. Barry's plan entered into much fuller details and conveyed a much clearer impression of all the various compartments, as well as of the whole building, than those of his competitors. He furnished, besides the ordinary plans, sketches of the effect of the more important rooms, in which was indicated the proposed mode of decoration. A similar advantage was possessed by Mr. Barry's plans of the Houses of Parliament. In that instance, too, they were most numerous and complete. Mr. Cockerell's were next in order of merit."

The Reform Club is modelled on the Palazzo di Farnesé at Rome, designed by Michael Angelo Buonarrotti in 1545 and built by Antonio Sangallo. It has six floors from the basement, but only three to Pall Mall. Many of the rooms are now put to uses which were not originally intended.

The Reform Club was instituted not long after the Carlton to carry the Liberal Members' motion for the Reform Bill. Mr. Ellice, the Liberal M.P., may be said to be founder, of which the trustees consisted of the Duke of Norfolk, Lords Durham and Mulgrave, General Sir R. Ferguson, and Mr. Ellice. Gwydir House, Whitehall, had been previously rented by them. An exhaustive account is given by Louis Fagan in "The Reform Club; its Founders and Architect, 1836-1886," published by B. Quaritch in 1887. The principal floors are nearly in alignment with those of the Travellers' Club, but have Ionic columns to the first-floor windows. The two buildings are cleverly dissociated by an obvious set-back containing a staircase leading to the bedrooms. Internally the cortile is covered in to form a saloon, having a colonnade around, a feature which a contemporary writer designated "hypæthral lighting," and it is, in fact, the nucleus of the winter garden of our day as used in modern hotels. The same system is adopted at Bridgewater House, but over an area about 20 feet longer than at the Reform Club.

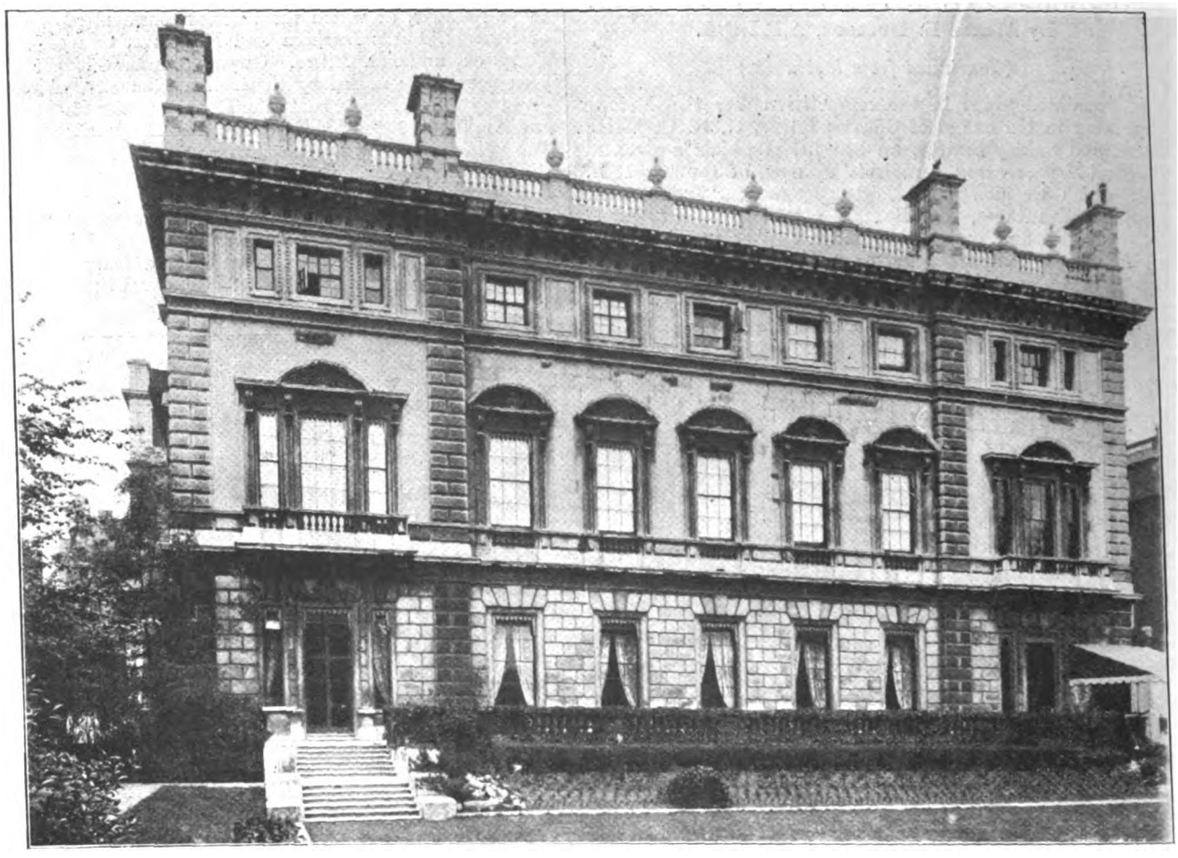


BRUNSWICK CHAPEL, BRIGHTON.

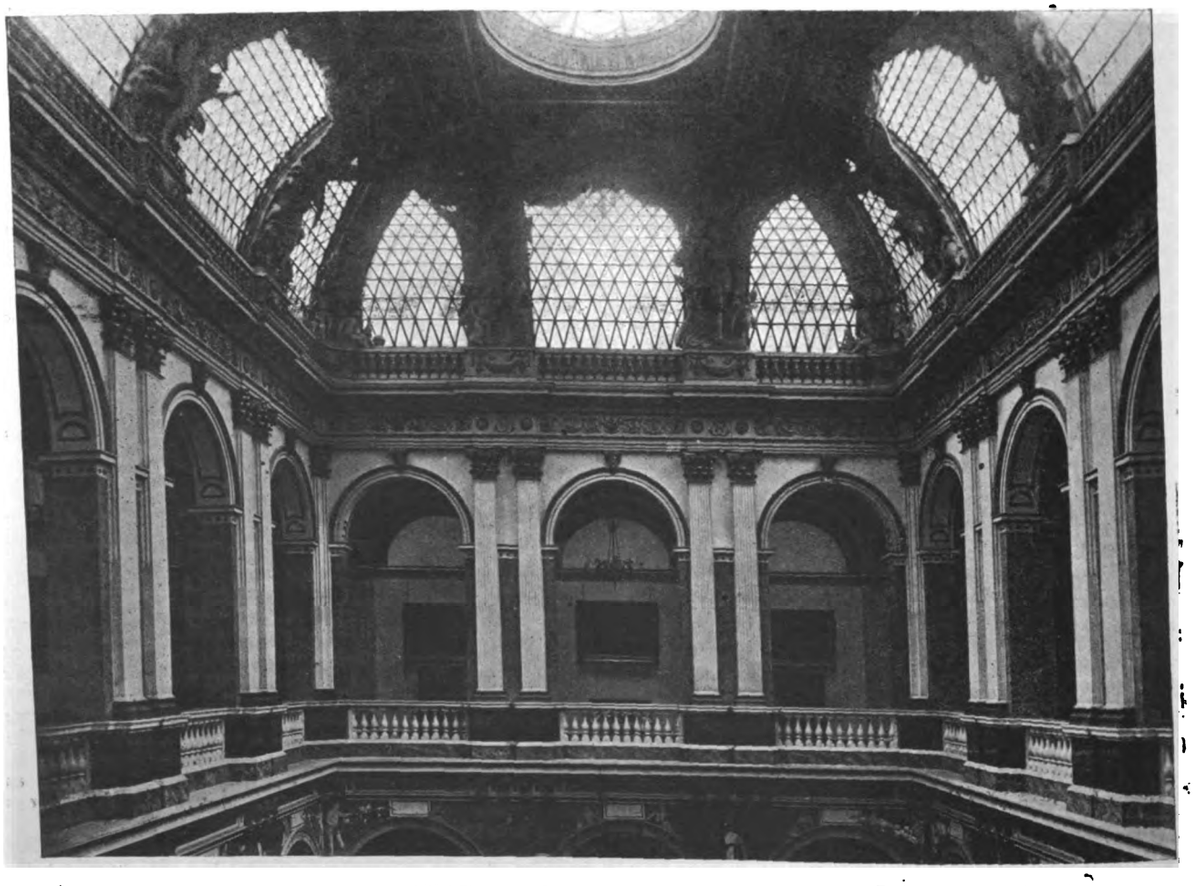
It is worthy of note, in passing, that Barry's enthusiasm spared no labour which would improve his work, and in this instance, the area of the windows being insufficient in his first design to completely satisfy his critical mind as to the correct proportion, he had a new set of drawings made to rectify the defect.

In plan the Reform Club is more symmetrical than the Travellers' Club, the entrance being placed centrally with the façade, giving access to the saloon and coffee-room

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BRIDGEWATER HOUSE.—FRONT TO GREEN PARK.



BRIDGEWATER HOUSE.—THE GALLERY.

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BRIDGEWATER HOUSE.—GALLERY CORRIDOR.

beyond, which latter is 25 feet by 115 feet, and divided into three parts by projecting pillars. The lower library and ante-room are placed to the right as one enters, with the card-room on the left. The still-room, steward's room, and staircases occupy the remaining area and supply the members with every possible convenience.

During the erection of this club house Barry made several designs for the Westminster Hospital, Charing Cross Hospital, a City club, a Manchester club, improvements for the National Gallery, alterations to Woburn Abbey for the Duke of Bedford, additions to Holland House, and a design for Buchanan House for the Duke of Montrose. These, however, were not carried out, and our subject found other occupation in executing certain alterations to Dulwich College; the College of Surgeons, Lincoln's Inn Fields; Trentham Hall; and Bowood for Lord Lansdowne.

Barry added to a number of Soane's buildings, of which Dulwich College is an instance. Others include refacing the Treasury Offices, Whitehall, the Houses of Parliament, renewing stonework to the Banqueting House, Whitehall, and making extensive alterations to the College of Surgeons and the Bank of England.

The College of Surgeons was practically gutted and only a portion of the portico left standing when the new alterations were effected in 1833-7 and again in 1850. The only additions since the last date were made by Salter, who added wings and an attic storey. The entrance and inner halls are very dignified and spacious. The marble chimneypiece in the hall is a survival of earlier date, probably by William Kent, having been removed from premises constituting the old War Office in Whitehall.

The theatre is of simple design and practical utility, while the board room is finished in his favourite style with pilasters and central door of Greek basis for design. The library and museums are large and lofty rooms with galleries supported on Doric columns or pilasters, giving an

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architectural setting to the fittings, while the frieze to the staircase contains the modelled Pan-Athenaic subject so familiar a feature of some other works of his.

Barry's halls are models of good planning giving convenience of access to other parts of his premises. At Bridgewater House, the residence of the late Earl of Ellesmere, the hall is to the right of the entrance lobby and a communicating passage runs parallel to the corridor of the saloon, giving a secondary means of egress from the library. Of the principal apartments the State rooms on the first floor facing the Green Park are the finest. The sideboard in the billiard room was exhibited at the 1851 Exhibition, and is an excellent piece of workmanship of the period, bearing the Sutherland coat of arms in the centre.

The main staircase starts from the centre of one side of the saloon as at the Reform Club, and the scagliola finished columns and piers at both premises are admittedly the finest in existence.

One of the main objects in the erection of Bridgewater House was the storing of £150.000 worth of valuable pictures bequeathed by the Duke of Bridgewater to the Marquis of Stafford, who in turn left them to his son, Lord Francis Egerton. Owing to the recent death of the Earl of Ellesmere the property will be inherited by his son, Viscount Brackley.

Most of the interior decorations were completed by artists from Munich subsequent to the death of the architect and cannot, therefore, be considered to be the taste and wish of the originator. They are lacking somewhat in that purity which would have undoubtedly been expressed had the architect lived to see its entire completion. Some very indifferent paintings of recent application seriously mar the effect of the saloon. The spandrils would look infinitely better treated with blue and gold mosaic in the character of the domes of the colonnade. The floor was also left unfinished, it being Barry's original intention to put a marble and mosaic floor to the saloon.

(To be concluded.)

IMPORTANT INFORMATION FOR THE CLIENT.*

PERSONS who have never employed an architect are apt to be at a loss as to the proper method of procedure, while many who have had some experience may not be familiar with the intricacies of architectural practice.

They may not understand that it is a profession; calling for men of the highest integrity, business capacity, and artistic ability; to command respect and confidence as advisers, and to sustain a grave responsibility to the public. No one may have given them practical information as to the relations that should subsist between client and architect. Experience has shown that lack of information on this subject is one of the most fruitful causes of trouble in building. The following is a brief outline of vital elements in building operations:—

1. The owner, who is to spend the money, as he does not and cannot know what he is buying, must trust the architect. Therefore he should first of all assure himself that the architect is worthy of his confidence; second, that he is fitted by study of economy in plan, construction, and material to discharge the grave responsibility; in short, that he has the right to the professional title.

2. The owner's interests are to secure the most available service, suitable design, best construction, most economical expenditure of funds. These can only be obtained by employing, not as a luxury, but as a necessity, an expert, a competent and reliable architect. The owner will be most benefited by choosing an architect before deciding upon anything else connected with the building project (in many cases even before fixing the building site and limit of expenditure), thereby gaining from start to finish the services of the expert's technical experience and knowledge in every phase of the problem.

3. Architecture in its highest element is a fine art—it is never a trade. The architect's practice is upon the same basis as that of the physician and the attorney; each is a profession, and selection should be on exactly the same principle, upon record for character, integrity, ability, and fitness for the service; a sensible, business-like, time- and trouble-saving method.

4. Designing a building is a process of evolution. Nothing but the full working out of the problem can produce this. The architect is a sort of clearing-house, in adjusting a multiplicity of ideas, wishes, needs, financial and other details. It is practically impossible for an advance programme to be an absolute guide to the best eventual scheme. The data compiled by an architect for such purpose may be quite different from that which at the start suggested itself to either owner or architect. The owner should get the benefit of his architect's best ideas and various solutions of the problem, not simply what is presented to catch the attention and "get the job"; the services of an expert, not of a mere draftsman.

5. The fallacy of the employment of an architect on the basis of the amount of commission does not in any way represent a wise measure. "Penny wise and pound foolish" applies most appropriately to the attempt to practise economy by choosing cheapness, merely to save the fair price for good service.

An incompetent man doing good work for a small commission might easily use a large per cent. of the cost of the completed structure in wasteful use of material, inefficient planning, misimproved opportunity, costly and unnecessary construction, with unsatisfactory results; whereas a competent man charging a higher rate for his services could give a very much higher percentage of return for the investment of funds, resulting in an ultimate saving.

6. Architects, like doctors and lawyers, place different values upon their services, and their services likewise vary in merit and results. This should not confuse the owner—the best is likely to be the higher priced. It is safe to rely upon the reasonableness of the rates for minimum fees and principles of practice as recognised by the leading representatives of the profession and the higher courts.

The right kind of professional service can only be maintained by adhering to the established standard of service; payment of adequate charges, based upon what long and wide experience has shown to be fairly remunerative; and methods that insure equitable relations between owner and architect.

The reverse of this takes the heart out of the labour and invites temptation to poor—worse still, dishonest—service.

7. Competition may be the "life of trade," but, as history shows, it is a delusion and a snare in professional practice, fraught with evils and pregnant with danger alike to client and architect.

Architectural competition is usually a handicap to the end sought. The functions of an architect are many and varied; he can be judged better by his reputation and completed work than by a preliminary sketch which represents merely one of his minor duties.

Do not expect gratuitous competitive designs, any more than diagnoses, prescriptions, and briefs. Plans are not like merchandise, kept in stock to fit all individual needs; the model plan exists only for its individual place and condition; each building requires special time, study, and labour—the architect's capital.

The unethical and uneconomic principle of "something for nothing" (that allures many), coupled with the prevalent lack of knowledge of correct architectural practice, is responsible for an intolerable condition. So gross, deplorable, and prevalent has the lack of sane business-like action and good faith between client and architect become that self-respecting and upright architects more and more refrain from all competition.

8. Designs presented in competition are likely to be the product of clever draftsmanship; instruments for working at, rather than with, the owner. With competitive drawings it is difficult to disassociate the excellence of the design from that of the catchily rendered drawing, or to determine to what extent the one presenting the drawings is to be credited with the design, since their preparation is easily assigned to a picture-maker, by whose handiwork it is absurd to judge the architect.

It is often impossible to correctly weigh the relative merits of contestants by hearing them present claims for consideration, and equally impossible to weigh the relative merits of preliminary sketches rapidly reviewed in the limited time ordinarily accorded to the task.

Such competition is a severe temptation to employ tricks of draftsmanship and promise of more than can be performed in the way of securing a desirable structure at a given expenditure; since all want the most that can be had for the appropriation, the competitor who will yield the most to these practices is too often the one accepted. His inability to make good manifests itself too late.

* This article was prepared and published by the Iowa State Chapter of the American Institute of Architects.

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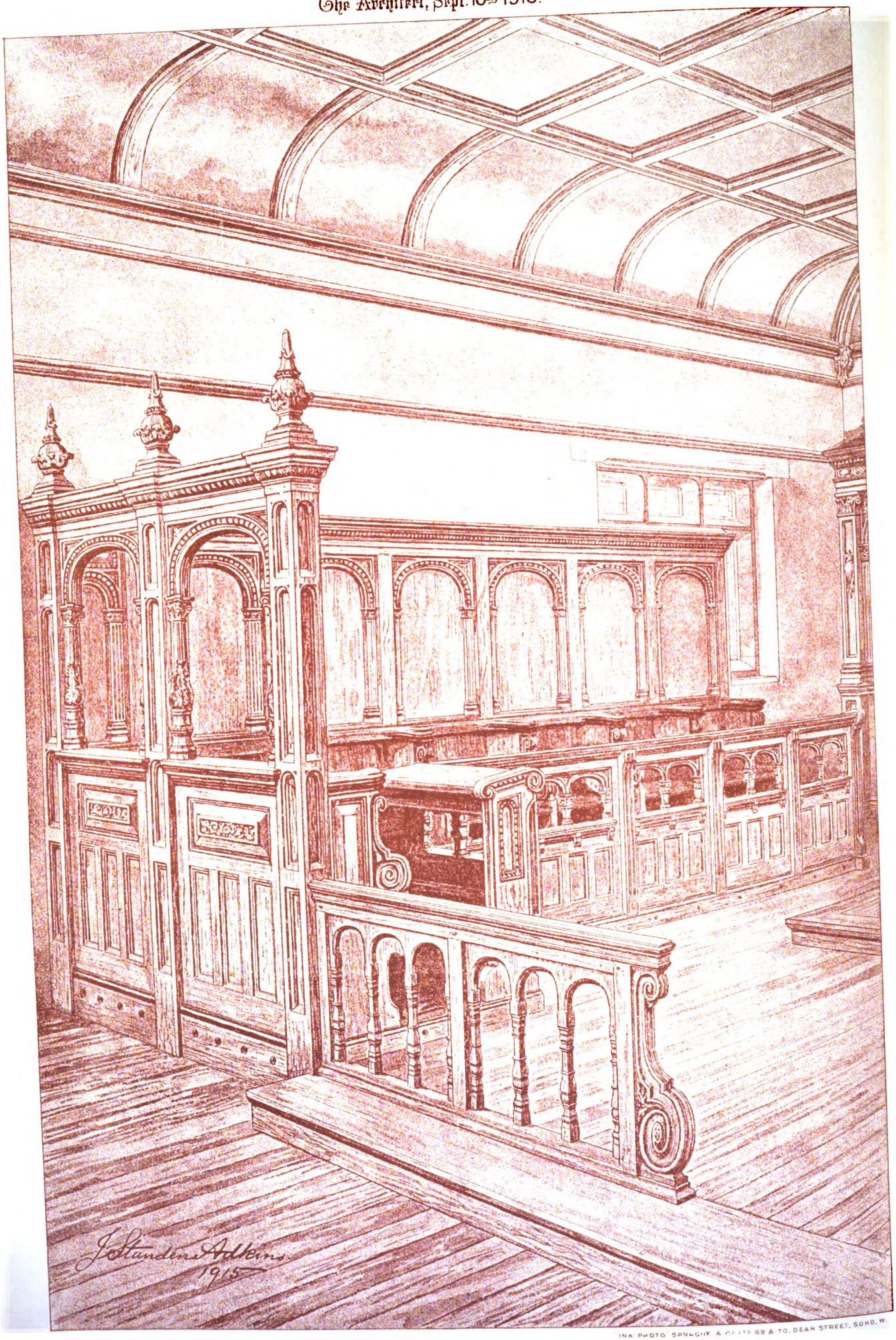
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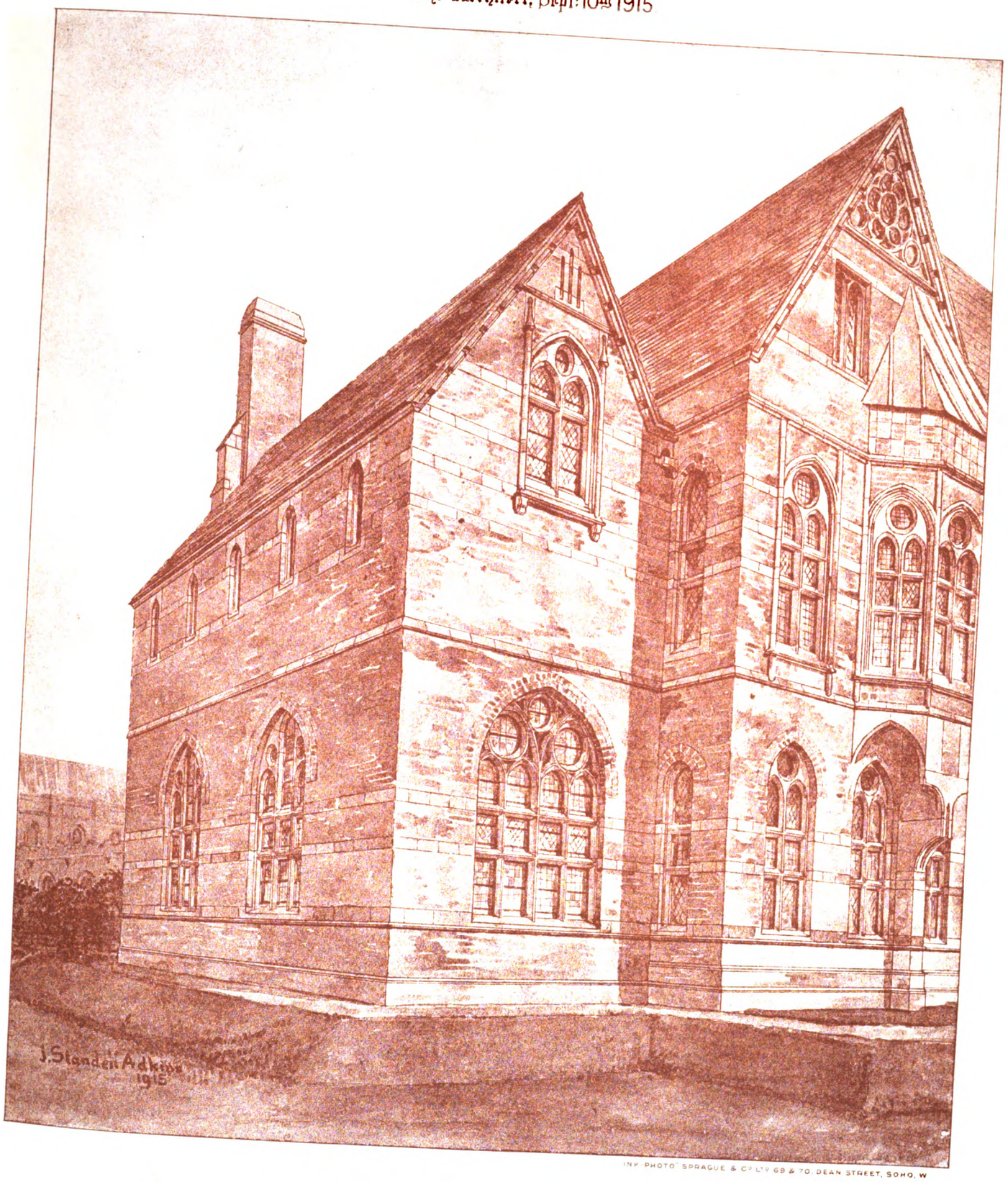


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NEW STALLS IN CHAPEL, LIMPSFIELD.

Mr. J. STANDEN ADKINS, Licentiate, R.I.B.A., Architect.

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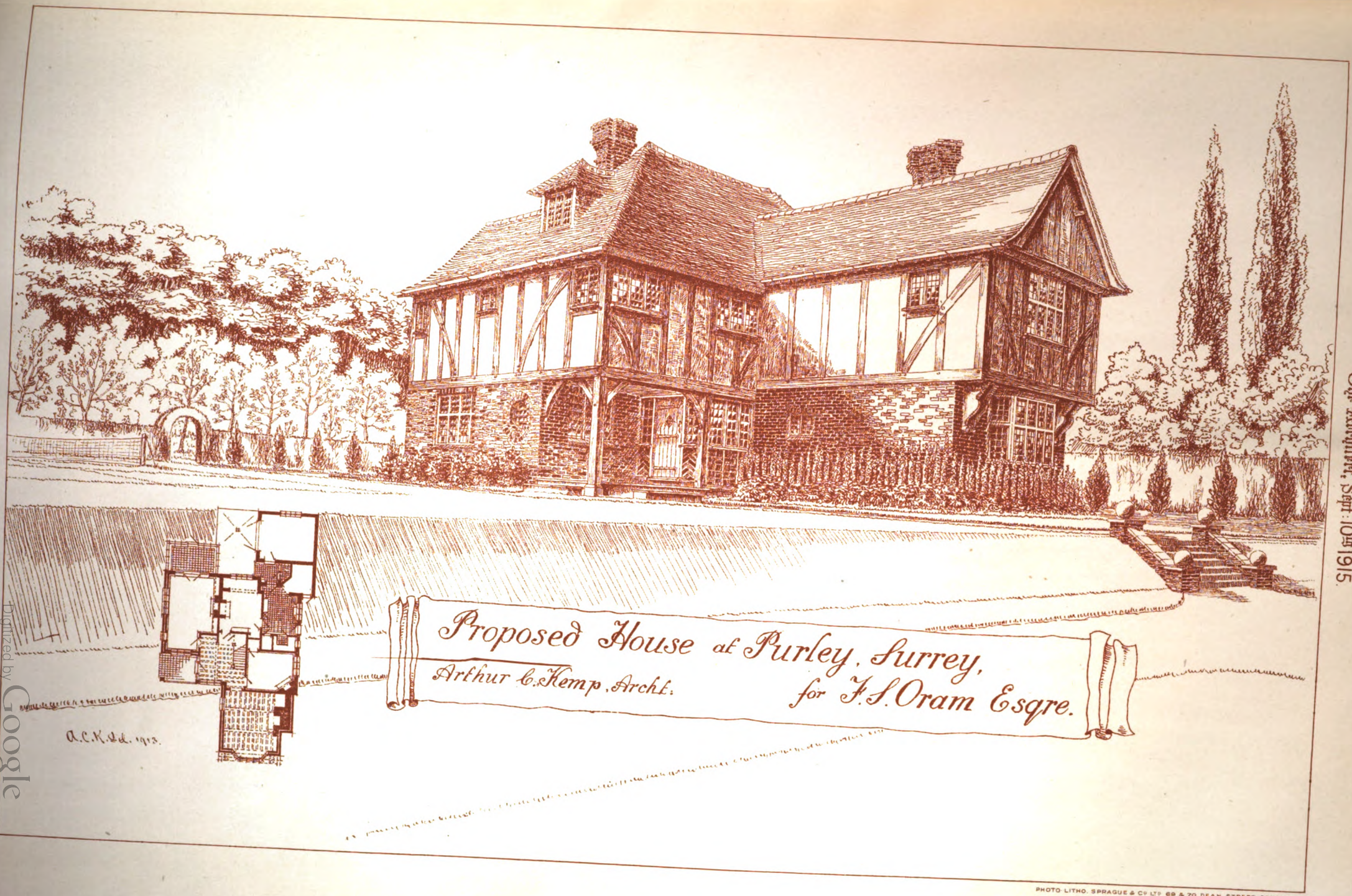
CONVENT OF S. MARY, EDGWARE.

Mr. J. STANDEN ADKINS, Licentiate, R.I.B.A., Architect.

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The Architect, Sept. 10th 1915.

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9. The date set for holding a competition may be one unavailable to the best fitted architect for the work; again the time limit for preparing the design may be inadequate for proper study; and, furthermore, he may not care to devote the time and expense necessary to a competition. Hence the selection is limited to the less capable.

10. Rather than limit securing a design to selection from among the few that a competition may bring forth, it is wiser for the owner to do this by intimately co-operating with his directly chosen architect in careful consideration of all accessible prototypes and alternative studies.

11. The altruistic and academic competitions among architects and draftsmen for prizes and not connected with any specific building operation are elements of educational stimulation, approved and fostered by the profession and public-spirited laymen. The public has no commercial interest in them, and they are not to be confused with the ordinary competition, which save in exceptional cases, is held to be unwarranted.

12. One of the most well-known, experienced, and successful architects of the nation, much of whose excellent work was obtained by competition, said: "I fail to know of a single commission in this country awarded by competition in which the client would not have been better served had the architect been appointed by direct selection."

13. When a competition is unavoidable or advisable, a study should be made of "Architectural Competition—a Circular of Advice and Information" (Document No. 114) and "Standard Form of Competition Programme" (Document No. 115), issued by the American Institute of Architects. These are a treatise and summary of the whole matter which show how to establish equitable relations between owner and competitor.

After the Architect is Chosen.

Make up your mind to what you must have and can afford; either take what your money will pay for, or do not build. Have a distinct understanding with him.

Do not hurry; be satisfied with the sketches before working drawings and specifications are made.

Do business only with a suitable and honest contractor; "you cannot get blood out of a turnip."

Arrange every step beforehand in writing; pay fair prices; value for value the world over—you will get no more for your money than you pay for.

Watch the work, but do all business through your agent and superintendent, the architect, who is the master-builder, and he alone should give orders to workmen.

Refer the contractor who comes with suggestions and real or fancied errors to the architect, to whom he should have gone. Make use of the architect's advice and avoid the chance of marring the whole with incongruous furnishings within and environments without; the mind that designed the house should be manifest throughout.

Actually rely upon and follow him in all points. Do not appeal to contractor or journeyman. Do not be stampeded by neighbourly critics and advisors. Keep in mind this pertinent thought:—

"Can you tell me why
Men with a taste for art in finest forms
Cherish the fancy that they may become,
Or are, Art's masters? You shall see a man
Who never drew a line nor struck an arc
Direct an architect, and spoil his work,
Because, forsooth! he likes a tasteful house!
He likes a muffin, but he does not go
Into his kitchen to instruct his cook;
Nay, that were insult. He admires fine clothes,
But trusts his tailor. Only in those arts
Which issue from creative potencies
Does his conceit engage him."

J. G. HOLLAND, in *Kathrina.*

If you follow these few hints in all that they imply, there is no reason why your house should cost you a cent beyond the estimated price, or why it should cause you more worry than buying a new suit of clothes.

The American Institute of Architects, composed of the leading architects of the nation, has for its object: "To organise and unite in fellowship the architects of the United States of America, and to combine their efforts so as to promote the artistic, scientific, and practical efficiency of the profession."

WILLIAM L. STEELE, *President*,
Sioux City, Ia.
EUGENE H. TAYLOR, *Secretary*,
May, 1915. Pub. No. 14. Cedar Rapids, Ia.

SCAFFOLDING AND LIFTS IN NEW SOUTH WALES.

THE annual report submitted to the New South Wales Legislative Assembly by the Department of Public Works contains an interesting summary by the Engineer-in-Charge of Scaffolding and Lifts of the year's work.

Scaffolding and Gear.

The number of notices received stating intention to erect scaffolding was 951, upon which forty inspections per day were effected by the two inspectors engaged on this work. Considering the tremendous activity in building work, it is gratifying to note that the requirements of the regulations have been satisfactorily conformed to.

In many cases where exceptionally heavy and awkward lifts had to be made the services of the staff have been availed of to advise as to methods proposed to be adopted. This work is outside general supervisory duties, but results have justified such co-operation on the part of contractors with the statutory officers.

Three fatalities in connection with building operations occurred attributable to defective timber in scaffolding, but the evidence at the Coronial inquiry showed that the responsibility could not reasonably be placed upon the inspectors. One fatality was due to a "dogman" overloading a working platform with stacked timber.

Fourteen casualties occurred necessitating absence from work of the injured for over two weeks, and there were fourteen mishaps of a less serious nature. Experience and inquiry show that the greater number of these occurrences would never have occurred had the men injured exhibited a keener personal regard for their own safety.

A great number of wrought-iron chimney stacks were fixed during the year. These necessitated the use of very long and powerful derricks, some of the stacks being 100 feet long, and weighing about 15 tons. Some very heavy lifts had also to be made by the same means in the erection of 50-ton travellers at White Bay Power Station, in the fixing of electrical machinery; also in fixing iron-framed principals at this and other buildings.

A feature of this year has been the building of a number of large residential flats, principally on the North Sydney side. There have also been several very high buildings erected, necessitating special precautions in the erection of scaffolding.

In connection with the carrying out of these contracts, new bases have been formed by throwing out cantilevers from different heights and building scaffolding from those supports, as the heights of buildings have been too great, and other causes have arisen to prevent same being completed from ground level.

Cranes and Hoists.

The design, construction, and use of cranes is a matter that has received the close consideration of this branch during the year. It was found necessary to conduct searching investigation into the strength of these machines, with the result that the factors of safety were found to be so low that immediate action was necessary. The load ratings both of British and Australian makers gave so small a margin of reserve strength that the machines could not be passed at their marked loads. On February 28, 1914, the following circular letter was therefore addressed to engineers, crane-makers, crane owners, and users:—

Scaffolding and Lifts Act, 1912.

Public Works Department,
Philip and Bridge Streets, Sydney.

Sir,—It is my desire to inform you that a number of tests recently carried out by inspectors of this branch conclusively prove that structural weaknesses obtain in a large proportion of hand-cranes and power-cranes—imported and locally made—in use in the districts in which the Scaffolding and Lifts Act has effect.

As you are no doubt aware, the primary object of the Scaffolding and Lifts Act is in the direction of preventing accidents and the safeguarding of the lives and limbs of those whose daily avocation brings them in contact with such appliances as are dealt with by the above-mentioned Act.

I respectfully submit, and have reason to believe that you will agree with me, that the full utility of an appliance is impaired if confidence in its safety does not exist. This consequently must have its effect in the economical carrying out of work, apart from the question of risk to life.

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I have to inform you, therefore, that it is my intention, through the statutory inspectors, to insist upon a factor of safety of not less than four (4) in the structural members and six (6) in all gearing on cranes, hand and power, operated.

Where considered necessary, a 25 per cent. overload test will be applied.

For the purposes of test, the jib will be extended to the maximum radius (*i.e.*, jib-head level with mast-head), and the jib against either back stay. In calculating the stresses set up in the crane members, stress diagrams will be made and will be available for your inspection if desired.

The section of glandirons will be determined by resolving the compressive stress in a backstay into its vertical component, taking the horizontal portion of the glandiron as a beam fixed at one end and loaded at the other, the length of the beam being measured between perpendiculars through the top pivot and the intersection of the neutral axis of the backstay portion of the glandiron with that of the horizontal portion.

In connection with steel jibs, in addition to the jib being taken as a strut, the additional stresses set up in the jib as a beam will also be taken into consideration, as in long jibs these stresses have an enormous weakening effect.

Gearing stresses are also a matter for serious consideration, as an apparently well-designed gear may be radically weak, and, consequently, overstressed, by unsatisfactory engagement of one tooth with another, due to faulty workmanship in making or fitting. Top and bottom pivots are also points of weakness, and require close attention.

The determination of the safe loads of the cranes in use will, of course, take some time. Your attention is, therefore, invited to Regulations 14 and 15 regarding overloads, as a crane that is inherently weak may easily be overstressed, and its subsequently stability is practically undeterminable. After such an occurrence the crane may fail, and with disastrous results, with what appears to be an absurdly light load.

In conclusion, I would state that of necessity this course of ensuring safe working will in some cases entail apparent hardship, but I am confident that you will appreciate my determination. I shall be glad if you will, directly or through your consulting engineer, avail yourself of the experience and co-operation of my staff in this matter.

As was to be expected when a drastic departure from present usages was effected, some opposition to the Department's requirements was evidenced. The Master Builders' Association appointed a committee, including their President, to interview me for the purpose of fully discussing the question from all points, and their representatives are now satisfied that the requirements, although somewhat revolutionary, are reasonable.

Individual crane-makers and owners have employed leading consulting engineers to combat the Departmental diagrams and figures. These were also forwarded to crane-makers of many years' standing in Scotland, the majority of whom could find no fault in our method of computation. All opposition from these quarters has lapsed. Local crane-makers have in some cases re-designed their cranes to the new standard, and one British firm is forwarding for approval complete details of their new standard designs.

One fatality and eight casualties occurred during the year in connection with cranes and hoists. The fatal accident was apparently caused by a workman being struck by the empty car of a builder's hoist. At the inquest no evidence was forthcoming as to how the deceased came by his injuries. The contractor for the erection of the building was successfully prosecuted for failing to keep his guard rails in position, although this contravention did not contribute to the occurrence. No casualty was the result of any defect in the construction of the apparatus used.

Cranes and hoists are registered under two main headings, viz., those temporarily erected and those permanently erected. The number erected for the twelve months under review is as follows:—

Cranes.		Hoists.	
Electric	60	Electric	67
Steam	11	Steam	11
Hand	154	Oil engine ...	3
		Hydraulic	3
Total cranes	225	Total hoists ...	84
Cranes and hoists temporarily erected ...			309
Permanently erected cranes			64

Approximately there are 1,400 cranes of all classes and types subject to the provisions of the Act, and in order to ensure their safe condition and working a great amount of labour on the part of the inspectors is necessitated. Complete measurements are taken and stress diagrams prepared. These, together with the resultant calculations, are made available to the persons owning the machines being dealt with.

Lifts.

Experience, and the advent of the tall building, has necessitated more safeguards to be provided in the cases of new lifts being erected, or where material alterations are to be effected on existing lifts, and the new requirements were embodied in the attached circular letter addressed to interested parties on April 27, 1914:—

Scaffolding and Lifts Act, 1912.

Public Works Department, N.S.W., Sydney.

Sir,—1. In pursuance of Section 15 of the Scaffolding and Lifts Act, 1912, I have determined that no lift being a passenger lift, goods lift, automatically controlled lift, or service lift, as the case may be, shall be erected, re-erected, or materially altered, or used unless the measures and provisions herein provided are conformed to. Any permit issued under Regulation 26 will embody therein as a direction such of the following measures and provisions as will apply to the class and type of lift it is proposed to erect. Such measures and provisions as aforesaid shall be in addition to any regulations now in force.

Measures and Provisions to be given effect to.

2. Speed of Lifts:—

(*a*) Any person making application to erect a lift shall state in such application the maximum working speed it is proposed such lift shall attain.

(*b*) No mechanically controlled electric lift shall have a speed in excess of 200 feet per minute.

(*c*) The speed of any lift comprising a car or platform, not being an express lift, shall not exceed 500 feet per minute.

(*d*) An "express lift" shall mean only such lifts as travel 80 feet or more without stop. No such lift shall have a working speed in excess of 600 feet per minute.

3. Over-run:—

(*a*) Up to speeds of 200 feet per minute a clear space for car over-run of not less than 3 feet shall be provided at the top and bottom limits of travel.

(*b*) For car speeds of from 200 feet per minute to 300 feet per minute, the space for car over-run at top and bottom limits of travel shall be not less than 4 feet.

(*c*) For car speeds of from 300 feet per minute to 400 feet per minute, the space for car over-run at top and bottom limits of travel shall not be less than 5 feet.

(*d*) For car speeds of from 400 feet per minute to 500 feet per minute, the space for car over-run at top and bottom limits of travel shall not be less than 6 feet.

(*e*) For car speeds in excess of 500 feet per minute the space for car over-run shall be as the chief inspector may direct.

(*f*) Any such space as aforesaid for car over-run at top limit of travel will be measured from top of car beam or double purchase sheaves attached to the car to the underside of any overhead sheave joist, ceiling, or platform as the case may be, and at bottom limit of travel, from the underside of the car beams to the landing beams of buffers as the case may be.

4. Safety Gear:—

(*a*) Every suspended lift comprising a car, excepting service lifts, with a car area of 9 square feet or less, and a car height of 4 feet or less, shall have a safety gear of a type approved by the chief inspector.

(*b*) Every suspended lift comprising a car for carrying passengers or goods and an attendant, and having a speed in excess of 200 feet per minute, shall be fitted with a safety gear which, in the event of failure of the lifting ropes or derangement of the machinery, will bring the car to an easy and gradual stop, or for a car speed of from 500 feet per minute to 600 feet per minute in a distance not greater than 8 feet.

(*c*) Any suspended lift comprising a car and having a speed less than 200 feet per minute may be fitted with safety gear of the instantaneous type.

(*d*) Every safety gear as required by the preceding paragraphs shall, in addition to any spring operating mechanism that may be integral therewith, be operated by an adjust-

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able speed governor, or regulator, properly and securely connected to the safety gear.

(*e*) No speed governor or regulator will be demanded on any lift comprising a car with a travel of 30 feet or less.

5. Overhead Beams:—

All overhead beams for lifts comprising a car shall be of wrought iron or steel, except in the case of service lifts.

6. Landing Buffers:—

Any lift comprising a car with a speed of 225 feet per minute to 300 feet per minute shall be provided at the bottom of the well with substantial car and counter weight spring buffers, and for car speeds over 300 feet per minute substantial buffers, of an approved type, shall be provided at the bottom of the lift-well for both car and counter-weights. All buffers shall be fixed to the approval of the chief inspector. No buffers will be demanded for service lifts.

7. Counter-weight Guards:—

(*a*) Where it is intended that counter-weights shall run in the same lift-well as a car, they shall be so arranged that the counter-weight cannot be drawn clear of the guide runners, and the counter-weights shall be enclosed or guarded for a distance of 15 feet below the top of counter-weight guide.

(*b*) All counter-weights shall have their sections rigidly and strongly bolted together, and shall be arranged so that the sections shall be maintained in a horizontal position.

8. Car-floor Framing:—

All car-floor framing of lifts for carrying passengers or goods, except service lifts, shall be of wrought-iron or steel, and all car superstructure shall be rigidly fastened and braced to the car beam and floor framing.

9. Guides or Runners:—

All guides or runners for any lift comprising a car, except service lifts, shall be of wrought iron or steel, and shall be fastened in a manner approved by the chief inspector. Provision must be made for tightening up all guides, runners, or backing timbers.

10. Magnetic Release Brakes:—

Every electric lift comprising a car for passenger or goods service and with a car speed over 300 feet per minute, shall, in addition to the magnetic release brake applied to the motor shaft, be provided with a similarly operated brake applied to the lifting rope drum, vee wheel, or traction wheel as the case may be.

11. Overhung Driving Wheel or Drum:—

No overhung driving wheel or drum for lifting ropes will be permitted for electric lifts comprising a car for passenger or goods service.

During the year a comprehensive and thorough review of all lifts erected in Sydney has been made. These have all been re-classified in order of their particular types. The gross total of lifts, whips, &c., in commission and subject to the provisions of the Act was, at June 30, 1914, 1,982. There are 724 hydraulic, 934 electric, and 324 belt-driven.

There are at present eighty lifts in course of erection.

Three fatal accidents occurred, particulars of which are as follows:—

(*a*) The machine of an overloaded electric goods lift overwound the balance weights, which were dragged clear of the guides, and upon the breaking of the pick-up bolt the weights fell upon an employee in the car.

Steps have been taken to overcome the possibility of similar occurrences.

(*b*) The hand line jammed in a hydraulic passenger lift, and in attempting to remove the passengers from the car without closing off the pressure and exhaust the car moved, causing deceased to fall under the car and down the lift-well.

(*c*) In contravention of the regulations, a company caused the removal of some enclosure gates which needed repair, and no provision for temporary safeguards till new gates, which had been made, were fitted. An employee fell down the lift-well.

The company was fined the maximum penalty of £20 for the non-observance of the regulations.

Five minor mishaps occurred, in which two people only sustained injury.

It is computed that the average number of passengers carried per day on each passenger lift is about 500. This would mean that over 75,000,000 people are handled per year on lifts in the Metropolitan district. This number does not include the traffic on the seventy-four goods-passenger class of lift, or the persons carried on goods lifts.

THE TREND OF ARCHITECTURE.

IF one studies carefully the expositions given in lectures, speeches, papers read before associations and the like, by leading architects at home, we think the dominant impression made on his mind will be that in the last few years there has been a sensible broadening of the general view as to what good architecture really is. The best thinkers have begun to deplore contention as to purity of style, as to which style is the best for such a country as Great Britain, as to rigid reservation of a particular style for a particular class of structure, as to punctiliousness in maintaining some unity of style in groups of structures, and many other so-called postulates which not long formed the creed of architects. There is a distinctly more liberal attitude towards these various formulæ which to our mind augurs a healthy advance in the spirit of the art. The change may be due to various circumstances, the main one of which is probably the more liberal education and wider culture shared by the profession of the present day. When a profession is a mere craft and during the period just succeeding the era of strict craftsmanship, it is only natural for a calling to be more or less hidebound by rules; these rules are in fact its safeguard, assisting it to attain to a high stage of technical perfection at a time when freedom may lead it in dangerous directions. An analogy may be found in the strict discipline imposed at a school, the somewhat relaxed discipline recognised at college, and the freedom enjoyed in the full life of business. The degree of restriction imposed in the earlier stages is correctly considered to be the best safeguard for a healthy development, and when an age of discretion has been reached the time has come to profit by the discipline of work under rule and regulation, and to expand without their hampering restrictions. The educated architect of the present time has many advantages over his forebears. Not only is his technical education more thorough, but he has been taken through a collateral course designed to give him general culture, to train his faculties at the same time as his technical teaching is training his skill. He has a much wider range of accomplished work to study, a richer literature, facilities of travel, facilities of intercourse with others of his profession and the general education that comes from working with others in societies and associations, all which are developments of a recent date. If all this is not to lift the architect of the present day into a higher plane than any occupied before, then it must be confessed that the world, generally, is advancing on altogether wrong lines. This is not our view. We think the cultivation bestowed by the widened education of the modern architect has had its natural and its best effect. It has uplifted him to a point from which he is beginning to see that the beauty of building does not necessarily lie in the rigid lines that have been associated with this or that order; nor does he rush to the other extreme and declare that originality is the essence of beauty. The best will be the most careful to exclude originality and remain content with appropriate combination. His work may not contain a feature, a line, or a moulding that has not been employed before, but if he has employed them only where they have been employed to the best advantage in earlier work, he is satisfied with his achievement.

When those who are now teachers of the art can tell us, as Mr. Richardson has done, that "if our attitude towards the Classic spirit is broad enough our position is strengthened, for we can look upon all styles, from Egyptian to Italian, as members of one family," we say that if this is the spirit in which modern architects are trying to work, then there is no excuse for forcing one style upon a country which has another more suited to it. The business of the designer becomes one of adapting the art of the country to the changed conditions of the times; and herein lies the great field which opens to the British architect with a world-wide empire before him, where he may exercise the new spirit of adaptation to its very highest extent. A quotation of what Professor Cockerell said in one of his Academy lectures, given in the 'forties, is worth going back to, as it seems to have become the creed of the best architects three-quarters of a century later. He said: "The studies of the beauties and defects of celebrated buildings should be the aim of the scholarly architect; this was the confirmation of theory and led to that knowledge of form and combination which makes the accomplished architect. The importance of this confirmation of theory was admitted by every practical architect. No man invented an order or a series of mouldings; these he accepts from the greatest and most reputed masters' works who have preceded him; he stores designs,

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Bury.—Brunswick Chapel, Nightingale Hospital.
Birmingham.—Halesowen Grammar School, Wolseley Motor Works, Barnsley Hall Asylum, Bromsgrove.
Broadmoor.—Criminal Lunatic Asylum.
Barnsley.—Workhouse; Infirmary; Baths and 8 Council Schools.
Brighouse.—Clifton Church.
Chester.—Town Hall.
Chadderton.—Town Hall.
Derbyshire.—Darley Dale, St. Elphin School.
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Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.
Manchester and District.—Victoria Hotel, First-class Dining Rooms, Central Station; Lake Hotel, Belle Vue; Kardomah Café, St. Anne's Square; St. Wilfred's Church, Hulme; Nursing Home, Old Trafford; School of Technology; Art School; Geographical Society's Buildings, St. Mary Parsonage; Palatine Buildings; Picturedrome, Pendleton; Whittlebrook Chapel, Walkden; Trafford Arms, Alderley Edge; Axe and Cleaver Hotel, Altrincham; Bridgwater, Eccles; Crown Hotel, Longsight.
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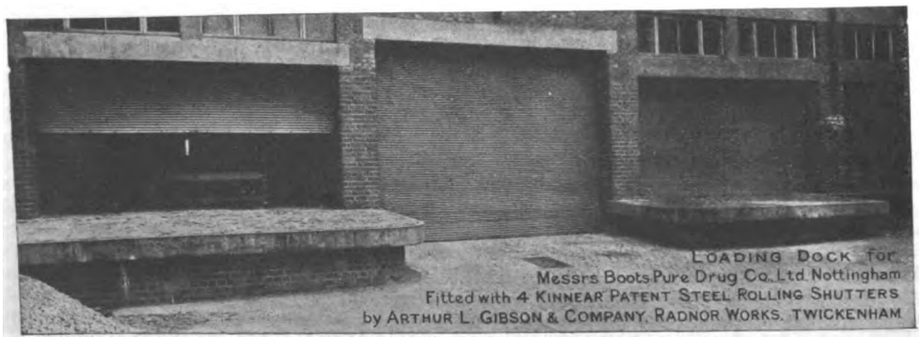
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books, and portfolios, and prides himself, like the lawyers, on his precedents and authorities. Absolute invention he never proposes to himself for a moment, but by a large study of history and examples he is enabled to detect the petty prejudices of schools, to emancipate himself from the trammels of nationality and fashion, and to regard the works of all times and countries as subject to his own use so far as they may be conformable to strength, convenience, and beauty." We thus see that the best minds see nothing amiss in adaptation in architecture and the free use of the forms that have established themselves everywhere. If such methods of design are permissible, then the canon applies with equal force to work in an Oriental country. There is no hindrance to borrowing from the East and using in the West in order to enrich Western work. What objection, then, can there be to borrowing from the West to use in the East—to adapt a Western design to the conditions of the East? If a Western life has to be lived in the East with certain conditions modified, there can be nothing more appropriate than to express this idea in the architecture according to the most advanced ideas of the present day. Yet there are some who ridicule the combination. They will not have Eastern architecture in its purity, but would have pure Western architecture thrust upon the East with as little compunction as they would introduce an exotic into a hothouse. The combination is no doubt difficult and demands the highest art to make it successful. But this is no reason for not attempting it—in fact, since Britain aspires to have a world-wide Empire, her architects must also aspire to have a command over the world-wide modifications of her architecture, remembering that her engineers have long ago solved the problems of design and construction special to the East.—*Indian Engineering.*

COHESION OF EMPLOYERS.*

COHESION of employers is of the utmost importance not only to the members of the building trade, but to all classes of employers generally. If such is the case, is it not of importance to the nation as a whole, for who guides the destiny of a nation eventually but the men who have made themselves leaders in the commercial world? Although at the present time in most of the States, and particularly in the Federal Government, the political party who are in power do not bear out my statement. What is the state of the business of the country in which they rule? Wild cat schemes are being introduced by them under the day-labour system, which are surely going to put such a load of debt on the people as to ultimately pauperise the country for years.

Numerous endeavours have been made to get the employers to support each other by joining Associations, Employers' Federations, &c., but still it is the great want of united action generally that causes the failure of any demands made by the workmen, who teach us a lesson in organisation and of cohesion that is marvellous. The power wielded by them is, no doubt, gained by the power of the boycott among themselves and against any workman who will not join their organisation, who necessarily has to starve unless he joins their ranks.

Could we not take a lesson from them and endeavour, by similar methods, to obtain the same result? The failure in most cases of employers' organisations is that they are not content to organise for defence purposes only. No sooner is a body of employers got together than the question is—can we raise prices against the public? The printing trade in Melbourne is a case in point, for Typothetæ no sooner got to work as a combine, which was, I may state, only started with this object, than competition absolutely ceased, and the public were at their mercy.

My idea is that the combines of employers should be only for defence purposes, and that all, large and small, should be ruled by it. I do not know that I can give you any information on, or have I any solution of the subject, but my purpose will be achieved if any discussion can rouse us to a sense of the danger we are in in not being combined, and provide any ideas for adoption by us. The great endeavour at the present time with the governing bodies of the various Trades Halls, is to get preference to unionists. To a great extent they have achieved their object, for although we do not recognise it in the form desired by them, still we have it, and we know that all our workmen at the present time are forced into the unions. Would it be any advantage to us to recognise the system on condition that the unionist only works for a unionist of the employers? This means, of course, the registration of the employers—but would it not assist in strengthening our position? It is strongly desired by the leaders of the other side, and to my mind the future disintegration of the unions will come from some such measures.

Now compulsion is an ugly word, especially to Australian business men who love freedom of action. But is freedom of action pure liberty? We make certain laws to restrict the individual liberty for the benefit of the whole, and it seems to me that right here, for the benefit of our business, which is practically the nation's work that we are doing, we should endeavour to arrange a cohesive whole, even by compulsion.

In New York the methods adopted are severe but effectual. For from what I can gather they have not had a strike there for some time, although labour is as strongly organised there as it is here. But the whole of the employers are also organised, and are interlocked in one great Association, with a governing council which meets the council of labour when occasion arises, discusses hours, rates, &c., and makes agreements.

The agreements are kept because the power behind both organisations is strong. Needless to say how labour applies its power.

The Central Executive, from what I can gather, of the Employers' Federation there, would courteously request a firm to join its ranks. If that firm refuses its reasons are sought, and if not considered satisfactory, that firm cannot get suppliers, brick manufacturers, timber merchants, plaster and tile warehouses to take that firm's orders, owing to pressure of business. Thereupon it either has to join or get out. The same method keeps it in line with the other builders as regards its agreement with the Labour Union. So that, as occurred in several cases in Melbourne lately, a firm which took work at a low rate and endeavoured to cut the men's wages would not get the support of the Federation. If the agreed conditions are not carried out, the Union does not disorganise by a strike, but informs the Central Council, who disorganise the other fellow's job until he comes to reason. They accept the Union's Socialistic idea of all workers (employers and all) being all cogs in the industrial machine, and in connection with the plan all sub-trades are bound to the Building Trades Employers' Association by a financial bond, and this ensures the collection of dues, &c.

A similar scheme which has been brought forward by one of our members and very largely discussed is a discount scheme, which, I believe, is in vogue in Western Australia and Brisbane. A Committee of our Association was formed and met in conference with the various trades, timber merchants, spout manufacturers, lime merchants, and other kindred trades. Not much progress was made, although approval of the idea was expressed by some of the leading trades. Further conferences were suggested, but, unfortunately, the war intervened, and nothing has been done since. The idea put forward was a special discount to members of our Association. The benefits to be derived by the other traders were prompt payments of their accounts or loss of discount; trading only with members of their Association, thus strengthening both sides; and a committee composed of some members of our Association and a similar number from each other trade to decide disputes and to discuss eligibility of outsiders to become members. This would make a strong cohesion of employers in the building trades, and no doubt would enable the trade to be properly organised and conducted.

No doubt a lot of people would be hurt in introducing this, but no reforms were ever yet brought in without hurting some one. A builder may be so situated with his merchant that possibly he would be unable to comply with the rule—deal with a fellow unionist—but is such a member a tower of strength or weakness to a trade? Such men must keep going, even to the cutting of prices to get work. Does not the whole trade suffer by men who will take jobs at any price, and are they not better wiped out?

Another matter which, I think, is part of this question and has been carried out in some instances, is the formation of a Defence Fund. Various organisations have inaugurated a fund, say, 5*s.* per cent. on work done or manufactured, and this has worked well, but only where the number of employers are in small and large businesses. I contend such a fund should be established by us for purposes of defence only. In Ballarat the builders, to get funds to meet their Association's wants, have a charge of ½ per cent. on all

* **An Address by Mr. W. H. Cooper, President of the Victorian Master Builders' Association, delivered at the Convention of Federated Master Builders, Australia, held at Brisbane, April 1915.**

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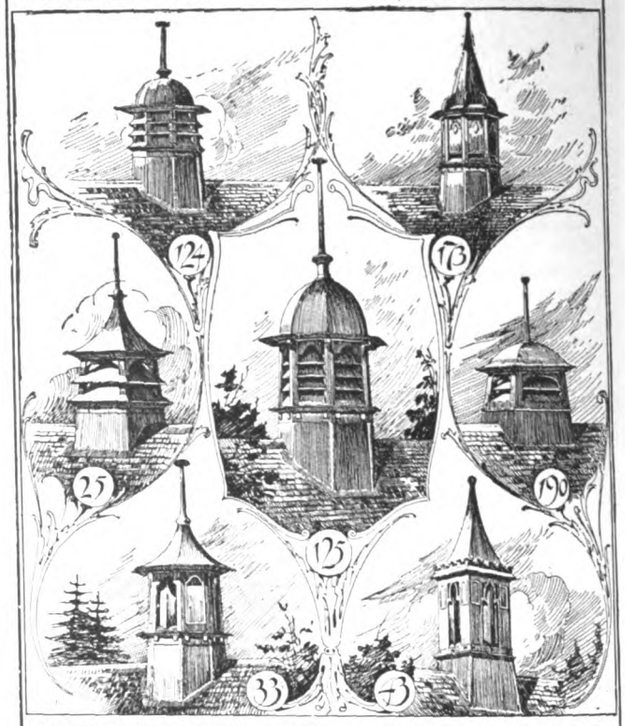
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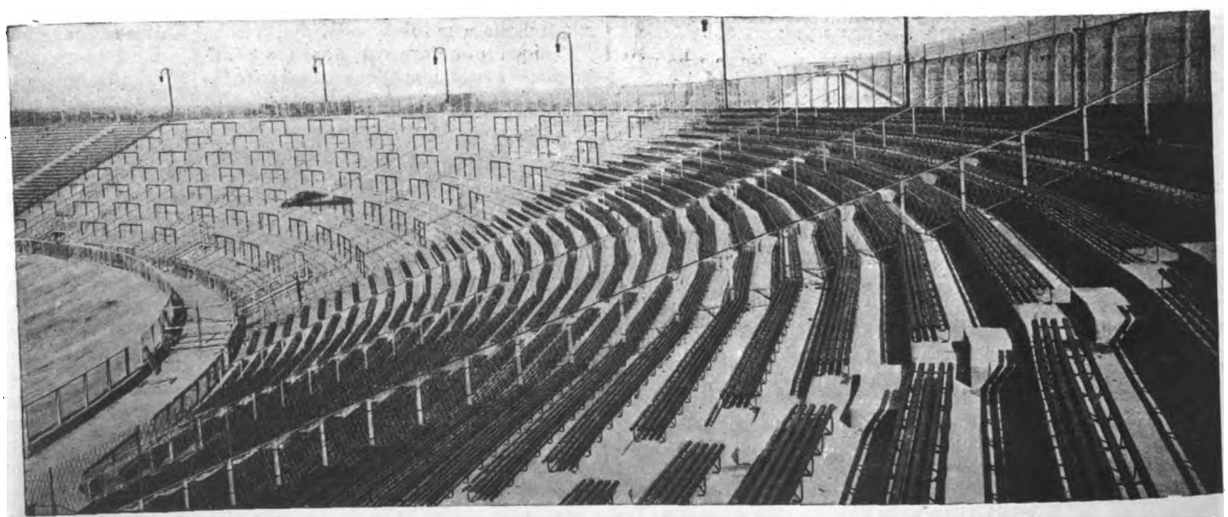
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contracts entered into, and this charge is on any member who obtains the job. In passing, I may state another system is carried on there. All tenders for a job are opened in the room before being put in to the architect, and if one is very much below the other tenders the tenderer can withdraw, but is not allowed to tender for the work only at his original price. I would urge the various Associations to seriously consider whether we cannot adopt some system which will compel men who will not join our ranks—some to save expense, some who will not lose their liberty as they term it, forgetting that pure liberty, as I observed before, is control by the majority for the benefit of the whole. It might also tend to restrict the day-labour system, which is rapidly growing under the labour rule—by controlling merchants, who now tender for supplies to the Government at 15 per cent. less than they supply to the builder.

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A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CUMBERLAND.

Carlisle.—Dye house, Lorne Crescent: extension. Sir R. S. Lorimer, architect, 17 Great Stuart Street, Edinburgh.

Works, Back Colville Street: extension. Mr. H. E. Scarborough, architect; also

Workshop, West Walls: extension.

DEVON.

Bideford.—Isolation Hospital: proposed additions and alterations (£6,000).

Chagford.—"Yelfords": rebuilding. Mr. E. F. Hooper, architect, Rock House.

DURHAM.

New Washington.—House, New Road, for Mr. J. Marley.

GLOUCESTERSHIRE.

Bristol.—Soap factory, Broad Plain, for Messrs. C. Thomas & Brothers, Ltd.

KENT.

Cranbrook.—"King's Head" Inn: alterations.

"Rose and Crown" p.h.: alterations.

Erith.—Electricity Station: extension.

LANCASHIRE.

Bolton.—Motor garage, St. Michael's Avenue, for Mr. W. A. Hindley.

Pavilion, off Holland Street, Astley Bridge, for Halliwell Cricket Club.

No. 16 Wood Street: additions. Messrs. Ormrod, Pomeroy & Foy, A.A.R.I.B.A., architects, 21 Acresfield.

Chorlton-cum-Hardy.—Recreation room, next the military hospital, Wilbraham Road, for the Corporation of Manchester Withington Committee.

MIDDLESEX.

Edmonton.—Military hospital: additional three hundred beds (£9,000).

NORTHUMBERLAND.

Allendale.—Nettle Hill Farm: additions, for Mr. Henderson Philipson.

Fourstones.—Crossgate Cottages: additions and alterations, for Mr. W. J. Benson.

Newcastle-on-Tyne.—Wingrove Car Sheds: extension to Westgate Road, for the Tramways Committee.

Slaley.—Cottages, for Mr. G. B. Atkinson.

SURREY.

Guildford.—Malt mill, &c., for the Friary, Holroyd & Healy's Brewery, Ltd.

SUSSEX.

Eastbourne.—Church, Old Town.

WARWICKSHIRE.

Birmingham.—Explosives factory, off Grange Road, Selly Oak, for Decimals, Ltd.

Nuneaton.—Factory, Anker Street: alterations, for Messrs. Simpkin, Son & Emery.

YORKSHIRE.

Harrogate.—Proposed theatre, for Mr. W. Peacock.

Morley.—"Oak Dene": additions and alterations. Mr. J. Auty, A.R.I.B.A., architect, 108 Queen Street.

South Kirkby.—Mission church, Moorthorpe.

Sowerby Bridge.—Sowerby Bridge Mills: blacksmith's shop, for Messrs. Bates, Son & Co.

WALES.

Kidwelly.—Two houses, Pendre, for Mr. C. W. Rosser.

SCOTLAND.

Arbroath.—Wardmill Factory: additions, for Messrs. M. C. Thomson & Co.

Dens Iron Works: gatehouse, &c., for Messrs. Alex. Shanks & Sons, Ltd.

Wellgate Works: addition, for Messrs. D. Fraser & Sons.

Glasgow.—Restaurant (£2,000), for the Clyde Navigation Trustees and Glasgow Sailors' Homes.

Kilmarnock.—Ham and bacon warehouse, Woodstock Street (£7 000), for the Scottish Co-operative Wholesale Society.

IRELAND.

Belfast.—Municipal Sanatorium: tuberculosis institute. Messrs. Young (F.R.I.B.A.) & Mackenzie, architects, 7 Donegall Square West.

Castlecary (Co. Donegal).—Intercepting hospital, Ballyrattan, for Derry Port Sanitary Authority.

Roscommon.—Central tuberculosis infirmary (£1,000). Mr. Mulvany, County surveyor.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Cinematograph Theatre in Leeds.

SIR,—My attention has been drawn to a paragraph in *The Architect* of August 27 stating that I was the architect for this building. This is not correct, and as such a statement is calculated to do very serious injury to any quantity surveyor's business, I must ask you to publish this letter in your next issue to contradict the statement with the same publicity as it was made.—Yours, &c.,

W. H. WOOD.

Queen Square House, Leeds: Sept. 6, 1915.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 16,075. July 6, 1914.—Georg Wingenfeld, Dusseldorferstr 152, Dusseldorf, Oberkassel, Germany. Moulding machines for artificial stone slabs.

16,181. July 7, 1914.—Dr. Marton, Lofkovits, Ipar-es, Kereskedelmi Bank, Debreczen, Hungary. Method of making and connecting the eyes of wall-ties or anchors.

16,502. July 10, 1914.—Dated under International Convention July 10, 1913. Kathe Jensen, Klutzow, Pomerania. Method of and apparatus for smoothing or finishing and cleaning earthenware pipes.

16,777. July 14, 1914.—Conrad Gautsch, Hufelandstr 17, Berlin. Device for controlling fire-extinguishing gas apparatus.

16,981. July 17, 1914.—Dated under International Convention Sept. 5, 1913. Berlin-Anhaltische Maschinenbau A.G., Franzstr 30, Dessau, Germany. Tar separators.

17,145. July 20, 1914.—Firm G. Polysius, Dessau, Germany. Method of burning cement, ores, and the like materials.

17,586. July 24, 1914.—Diedrich Bathen, 164 Duisburgerstr, Homberg, Prussia. Method of and composition for treating glass

17,713. July 27.—M. D. Tillmann, 500 Massachusetts Avenue, Indianapolis, Marion, U.S.A. Hot-water heating systems.

17,829. July 28, 1914.—Dated under International Convention Dec. 13, 1913. Eugen Muller and Ernst Eichert, Chemisches Laboratorium 2, Gallusanlage, Frankfort-on-Main, Germany. Method for the manufacture of magnesian cement.

18,432. Aug. 7, 1914.—Dated under International Convention Aug. 7, 1913. J. S. Fasting, 26 Allegade, Frederiksberg, near Copenhagen, Denmark. Grinding or crushing machines.

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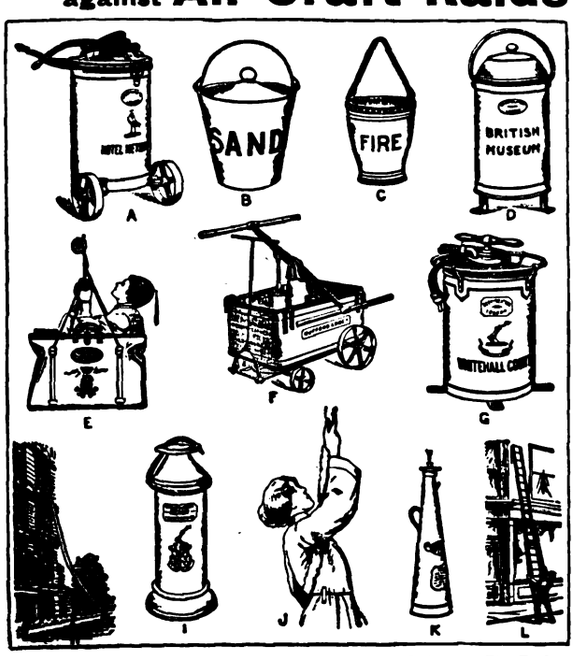
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THE ARCHITECT

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FORTHCOMING EVENTS.

Thursday, September 23.

Iron and Steel Institute: Autumn Meeting at the Institution of Civil Engineers (two days).

LIGHTING IN FACTORIES AND WORKSHOPS.

THE first report of the Departmental Committee of the Home Office deals with an inquiry limited as far as possible to the textile, engineering, and clothing trades, certain general principles, common to all trades, however, being also taken into consideration. We give elsewhere the Committee's memorandum summarising the principal contents of the report and appendices, and now deal with some of the leading matter in the report. After describing the methods of investigation employed, the Committee proceed to an explanation of technical terms commonly employed in discussing the phenomena of lighting.

Illumination is the amount of light which falls on a unit of area of a surface illuminated. This is affected not only by the strength of the source of light to which the illumination is due, but also by the distance of the illuminated surface from the source. The accepted unit of illumination in this country is the "foot-candle."

Surface Brightness is the measure of the light received by the eye from an illuminated surface. In the case of bodies that are not self-luminous, surface brightness depends not only on the amount of light falling upon them—*i.e.* "illumination"—but upon the nature and colour of the surface, the angle at which it is viewed, and the direction of incidence of the light illuminating the surface. An ideally white surface is one that returns all the light falling upon it, but such a surface does not occur in practice, and, therefore, in the estimation of the illumination requisite for any given work, the nature of the surface on which the work is being done is an important factor.

Glare is the term applied to a class of phenomena in which light from bright sources or objects enters the eye in such a manner as to cause annoyance, headache, and other trouble, and often, eventually, diminished ability to see. The word "glare" is used to cover any of the following phenomena: (1) The effect of looking at a bright source of light, such as an arc lamp, so that the observer is for the time being prevented from seeing other objects properly; (2) the effect which is produced by one or more bright sources of light towards the edge of the field of vision, so that the rays enter the eye obliquely from them. This is the commonest form of glare. (3) The effect which is produced when the surface of cloth, metal, paper, or other material being worked upon is shiny or polished, and reflects light directly from some source into the eyes of the worker, as in the case of satin cloths and highly glazed papers which have a sheen upon them.

Daylight Factor is the ratio of the actual value of the illumination within a building to the full amount of light from an unobstructed sky. It is usually expressed as a percentage, and is a measure of the lighting efficiency of the building at the point under observation.

In the meaning attached to these technical terms the Committee have adopted the conclusions now accepted by scientific students of illumination, but, in addition, for the purpose of their report they have introduced the use of "Frequency of Occurrence" Curves.

"*Frequency of Occurrence*" *Curves* constitute a graphic method of setting forth the results of observations of illumination in factories to show what are the most general illuminations at present prevailing in any class of factories or processes.

The Committee define the factors of good lighting as: (1) Adequacy; (2) a reasonable degree of constancy and uniformity of illumination over the necessary area of work; (3) the placing or shading of sources so that the light from them does not fall directly on the eye of an operative when engaged in his work, or when looking horizontally across the workroom; (4) the placing of lights so as to avoid the casting of extraneous shadows on the work. Of these the most important for such a Committee to consider is the determination, if possible, of a standard of adequacy. The remaining factors are now well recognised as essentials of good lighting, and their attainment is, or should be, the object of endeavour in every architect's arrangement of the lighting sources of his buildings and of every illuminating engineer who may be entrusted with lighting, by whatever medium, on his own responsibility.

The evils of unsatisfactory illumination include increased liability to accidents, damage to eyesight and health, insanitary conditions, diminished output of work, and lack of discipline. There is therefore sufficient justification for the recommendations of the Committee that there should be a statutory provision—(*a*) requiring adequate and suitable lighting in general terms in every part of a factory or workshop; and (*b*) giving power to the Secretary of State to make Orders defining adequate and suitable illumination for factories and workshops or for any parts thereof or for any processes carried on therein.

In the consideration of adequacy, it is obvious that a distinction should be made between (*a*) the illumination of workrooms or parts of workrooms where work is in progress, that is, of the working area of the factory; (*b*) the illumination of passages, stairways, lobbies, &c., and places in workrooms or other parts in factory premises over which persons are liable to pass, but which are not parts of working areas; (*c*) the illumination of open yards and approaches.

It is also obvious that in different employments there will be varied methods of lighting of workrooms determined by the necessity of the work for a greater or lesser amount of illumination on the actual work itself, and these methods may be classified as follows: (1) General lighting, whereby an illumination is produced which is approximately uniform throughout the whole room; (2) localised general lighting, whereby an illumination is produced which is approximately uniform over a portion or portions of the room in question; (3) local lighting, with the object of lighting some particular portion of a machine or locality by an arrangement of individual lamps acting independently of one another; (4) combined local and general lighting.

When the work is being carried out in workrooms illuminated by the first of these methods it will generally happen that the illumination which is sufficient to enable the work to be satisfactorily carried on will also be sufficient for the lighting of passage ways in the workroom, but when localised lighting is provided the illumination may possibly be confined to the working area, and the parts of the workroom outside this area may be badly and dangerously lacking in light. Therefore we find that the Committee make a distinction in their recommendations as

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to the minimum illumination that should be considered adequate.

The Committee have taken a considerable volume of evidence and made extensive observations of the existing practice in various classes of workrooms and factories, and from these have deduced the minima which they consider should be the subject of statutory provision for adequate lighting as expressed in the following recommendations: (*a*) Over the "working areas" of workrooms the illumination measured on a horizontal plane at floor level shall be not less than 0.25 foot-candle, without prejudice to the illumination required for the work itself; (*b*) in all parts of iron-foundries in which work is carried on, or over which any person is ordinarily liable to pass, the illumination measured on a horizontal plane at floor level shall be not less than 0.4 foot-candle; (*c*) in all parts of factories and workshops (not included under recommendation (*a*)) over which persons employed are liable to pass, the illumination measured on a horizontal plane at floor level shall be not less than 0.1 foot-candle; (*d*) in all open places in which persons are employed during the period between one hour after sunset and one hour before sunrise, and in any dangerous parts of the regular road or way over a yard or other space forming the approach to any place of work, the illumination on a horizontal plane at ground level shall be not less than 0.05 foot-candle; (*e*) there shall be power for the Department to allow exemption in individual cases; (*f*) all external windows of every workroom shall be kept clean on both the inner and outer surfaces.

It cannot be said that these recommendations err on the side of stringency, and comparison of the "Frequency of Occurrence Curves" shows that the minima determined by the Committee are well below the average of existing conditions. There is one consideration that seems to us to have escaped the notice of the Committee, but which is, in our view, of considerable importance in its influence on the safety of factories, and that is the relation between the actual illumination of working and non-working areas. Where the illumination of the working area, by reason of the requirements of the work is of a high degree, the illumination of the passage-ways should be higher also; the effect of excessive contrast, and a sudden drop from a brightly illuminated working area to a dim obscurity in the passage-ways is an element of danger, and we think the Committee should consider the advisability of establishing a minimum percentage relation between the contrasted areas.

The report is of interest to students of the science of illumination from the appendices included, which contain much useful information.

NOTES AND COMMENTS.

WITH the near approach of the winter session, there come before us the curricula of the various architectural schools. The Architectural Association purposes, despite the war and the consequent reduction in the number of its students which it experienced last year, to continue its now well-established programme of a three-years' course of study in the day school, and, provided the students appear, to carry on the evening school, which last year failed entirely for want of support. It is particularly notable that in the A.A. course of instruction as at present arranged great importance is attached to draughtsmanship, perspective, freehand drawing, and measuring being included in the work of first-year students, whilst "the students of the third-year day school are expected to attend the life class."

University College, London, with its new building, which is claimed to be "the largest and most complete of its kind in the United Kingdom," and its association with the engineering faculty of the College, the modelling studios and the Slade School of Fine Art, offers great advantages to embryo architects, and holds forth opportunities of a B.A. degree course (Honours in Architecture) as internal students of London University. There are also diploma courses in Town-planning and Civic Architecture and in Town-planning and Civic Engineering for those who wish to specialise in this direction. Another special feature of University College is the Academic Design Course, which is "conducted mainly on the lines of the course in the Ecole des Beaux-Arts, Paris, with Sir John J. Burnet, R.S.A., as special visitor."

The vexed question of the legality of a *rood* in churches is seen by the recent decision of the Chancellor of the Diocese (Lieutenant-Colonel Francis H. Lancelot Errington, M.A.) in the case of the Cathedral Church of St. Nicholas, Newcastle, to depend for its solution in any particular instance upon the personal opinion of the Chancellor. The law seems to be based on the view that may be taken by the Chancellor of the direction in which the proposers of a rood incline towards "purpose of decoration" or "superstitious reverence." Thus in the Newcastle case we find the Chancellor said: Having regard to it, I must find that the group is not to be put up for the purpose of decoration only. On the other hand, while bearing in mind that "superstitious reverence" does not necessarily mean the making of the group into an object of devotion, but "the far more extended conception of worship, adoration or reverence paid to the Deity in the presence of or before these objects or figures," including "all and every form or design in which the object in question is made to take a place, or play a part in the devotions, which are paid to the Deity before it" (Clifton *v.* Ridsdale), I do not find here any teaching by the Vicar leading to superstitious reverence, and I think the completion of the group is desired by all the petitioners as an addition to the devotional aspect of the church, and in that sense only as an aid to devotion. This view, however, does not much assist me to a conclusion, as it is obvious that while sculptured representations of Our Lord or the Saints may to some members of the Church of England be an aid to devotion, they are not necessary aids, and to others they may be an absolute hindrance. I have further to bear in mind that in the present case I am dealing with a Cathedral Church in which all members of the Church of England should be able to unite in common devotion. Even, therefore, if the rood were certainly legal, I should feel some hesitation in authorising its erection in the Cathedral Church of the Diocese; if there is any doubt about its legality, it seems to me clear that the Cathedral Church should set an example in self-restraint to all other churches in the Diocese, and should, therefore, avoid anything having a shadow of illegality. Now, what is the position of the rood in this respect? It has been allowed by some of the judges of the Consistory Courts, and disallowed by others. There is no such thing as diocesan law in the Church of England, and there is certainly no consensus of opinion of the judges of first instance as to the legality or otherwise of the rood according to ecclesiastical law. There has been no decision of an Appellate Court dealing with the question of the rood placed on the summit of a screen. So far as I know, the figure of Christ crucified standing alone on a chancel screen has, as a matter of principle, and without regard to the particular circumstances, always been disallowed; and for myself I am unable to see how the addition of two figures alters the matter. The single figure can be made as much a matter of architectural decoration as the group; it is much or more of an historical representation. If, as the Vicar says, the object is to remind people of the great fact of the Redemption, it is the figure on the Cross that conveys the lesson. The two figures at the foot of the Cross, both architecturally and devotionally, merely lead the way upward to the central figure, and I cannot follow the reasoning that would disallow the central figure taken alone, but would admit it when accompanied by two figures, both of which only go to emphasise its dominating position and influence.

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I understand that in the unreported case of St. Luke's, Newcastle, my predecessor allowed the retention of the figure of Christ on the Cross in a very similar position, provided the other two figures were added, and this is a strong authority in favour of the petition. Were the present application in respect of a parish church, I should feel great hesitation in differing from Sir Alfred Kempe. The position of St. Nicholas is, however, that of a Cathedral Church subject to the right of the patron and incumbent. The grant of a faculty is not a matter of right, but of discretion, having regard to all the circumstances; and it is enough for me to say in the present case that I do not think the legality of the rood is so well established that it ought to be erected in the Cathedral Church of the Diocese. I grant a faculty confirming the erection of a screen and cross. I agree with the petitioners that the figures of St. Mary and St. John are somewhat out of place, and I think they should be taken down. If any alteration in the size of the cross or in the pedestal is suggested, I will, of course, consider it.

"Granite merchants in Aberdeen are experiencing considerable difficulty in executing orders owing to the scarcity of foreign granite." Such is the announcement we read in the *Aberdeen Free Press*, and we feel very much tempted to say, "Serve them right!" But we fancy that this is not the whole story. It is not the want of granite, but the want of labour to quarry the granite that lies at their doors that troubles the Aberdeen merchants, we fancy. In so far as the merchants have been cutting down the industry of the quarrymen and quarry-owners by the importation of lower-priced, State-subsidised, Norwegian material, they have no sympathy from us for their present trouble. Quarrying in the district has been on the down grade for years, many quarries having been closed entirely and the machinery sold. It is hardly probable that capitalists would be inclined to re-open these quarries, because at the end of the war matters would revert to the normal, and a sufficient supply of foreign granite would be again forthcoming, doing away with the necessity of an increased home production. To make matters worse, those that are still being worked are mostly in a very bad condition, and sound blocks are only produced with the greatest difficulty. The scarcity of experienced workmen is also being felt, and one large quarry is being worked by a third of its normal staff. Granite is not the only building material whose native production has been reduced to unprofitable conditions by the importation of foreign cheaper substitutes, and we are not the least bit sorry that those who have made profits by unpatriotically ruining their fellow-countrymen are now feeling the pinch of their own suicidal folly.

The slate quarrying industry of North Wales has been hard hit, even before the war, by the combined effect of the slump in the building trade in the last few years and the importation of foreign material, cheap slates, and cheaper asbestos roofing, and the present position, as a result of the great diminution of building by reason of the war, is lamentable. The Government does not seem even in this state of affairs to be able to divest itself of a rooted antipathy to the largest industry in the country if we read rightly the letter received by the Carnarvonshire Committee for the relief of distress, which runs as follows:—

Sir,—I am directed by the Government Committee on the prevention and relief of distress to inform you that they have decided to recommend a further grant of £250 from the national fund, and have forwarded a recommendation to this effect to the committee of the fund.

Looking, however, to the conditions in the slate quarrying industry in which the majority of the persons now receiving assistance are engaged, the Government Committee doubt whether they will be justified in recommending similar grants in the future.

The Government Committee understand that the industry was in a depressed state before the outbreak of the war, and that, although the war has no doubt aggravated the depression, the present condition of the industry must in part be ascribed to other causes, which may or may not disappear at the end of the war.

The Government view with some anxiety the prospect of the industry in such circumstances settling down into a state of normal part-time employment supplemented by assistance from relief funds.

Moreover, when there is a great shortage of labour in other parts of the country, the Government Committee find it difficult to justify the grant of relief on the ground of want of employment.

Further, the transference of men from the slate quarrying industry, in addition to increasing the supply of labour for those industries which are of such vital importance at the present time, should at the same time lead to a reduction in the amount of under-employment among those who on account of age or other reasons are compelled to remain in the district.

The Government Committee have not failed to note that there has recently been a material reduction in the number of men receiving assistance, but they cannot feel satisfied that sufficient advantage has yet been taken of the opportunity for transferring labour to other districts where a great demand for labour exists.

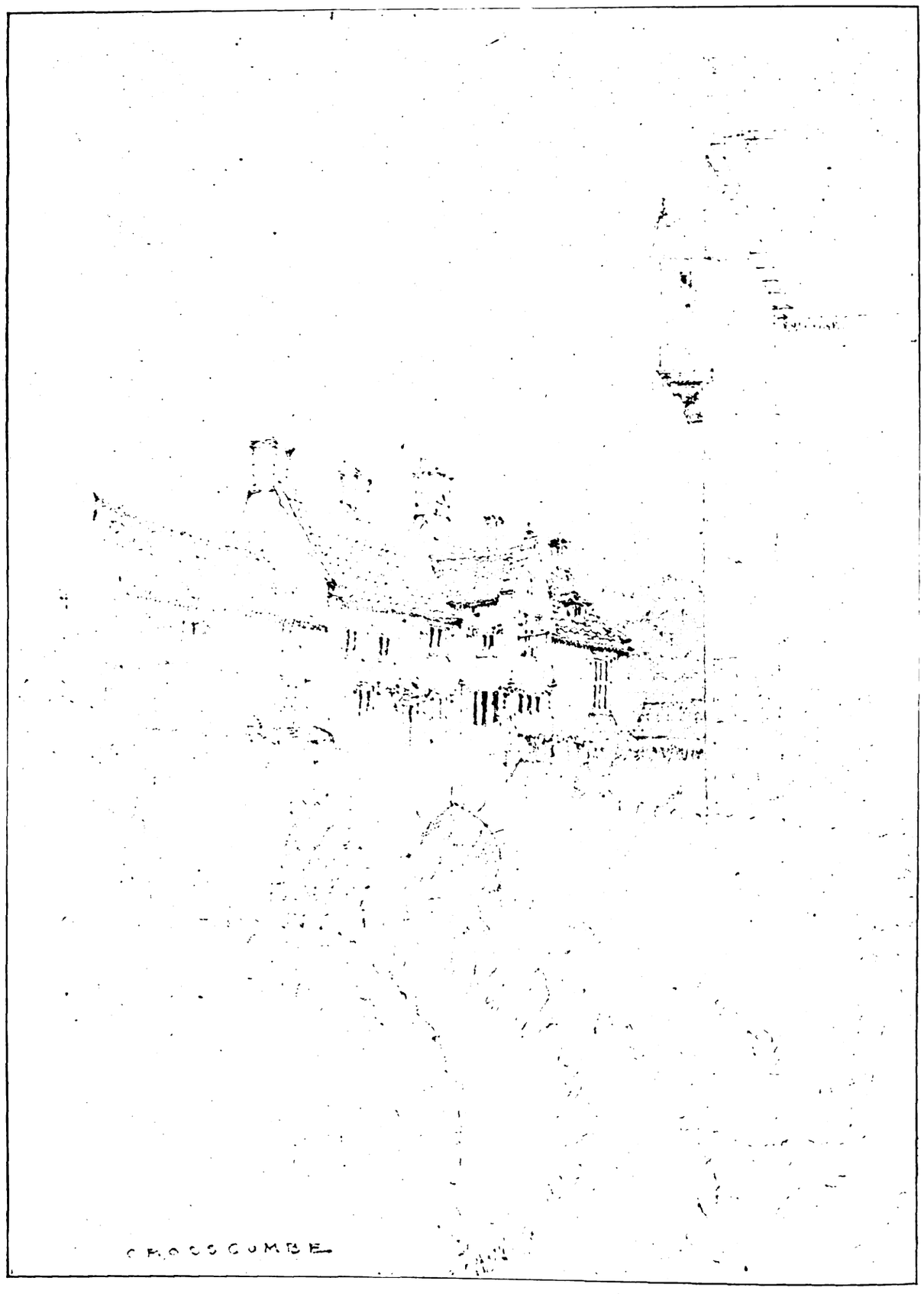
To a student of bankruptcy law the decision in the case of the Lords Commissioners of the Admiralty against the trustee of the sequestrated estates of Andrew Blair, public works contractor, that the Crown is not entitled to rank as a preferential creditor is no doubt interesting, but to us the facts of the case are of greater import as illustrating the effect of the war on contract prices.

In May last year the Commissioners entered into a contract with Blair for the execution of storage works at Rosyth at a cost of £7,031. Before the contract was completed the contractor's estates were sequestrated. At the date of the sequestration the contractor had executed work to the value of £2,771 19*s.* 10*d.*, and had been paid £1,800. The trustee declined to carry out the contract, and the Commissioners entered into a new contract with another contractor to complete the work for £6,280, making the total £9,051 19*s.* 10*d.* for the work done. That represented a total increase of £2,020 19*s.* 10*d.*, which, less the sum due to the contractor, £971 19*s.* 10*d.*, made the net extra cost £1,049. That was the amount of the damages sustained by the Commissioners through the failure of the contractor and the trustee on his sequestrated estates to complete the contract. For that sum of £1,049 the Commissioners, as representing the Crown, claimed a preferential ranking in the sequestration. The trustee admitted the claim to an ordinary ranking, but rejected it in so far as made for a preferential ranking.

Although we may regret, we can scarcely be surprised under present circumstances that a meeting arranged at Birmingham by the Society for Promoting British Trade was poorly attended. A good many true observations were included in the speech of Mr. Wilfrid Hill, who presided, and who said, as reported in the *Birmingham Post*:—

A meeting of a society for the promotion of British trade was particularly appropriate at the present time, because it was generally believed we were entering upon the closing stages of the war and looking forward to the commencement of a new era in British business enterprise. There was a new impulse moving in the minds of most business men, and there was a general determination in business circles to make British trade in the future more aggressive, more efficient, and more fitted for the competition of rival commercial nations than it was in pre-war days. There were two pressing demands upon business men at the present critical time. The first was to increase the production of wealth to meet the colossal demands which were being made, and would

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From a Sketch by Mr. CHAS. E. BATEMAN, F.R.I.B.A.

continue to be made, upon the nation long after peace had been declared. To increase our wealth production with the present disorganisation of industry was quite a problem. The lack of labour, manufacture of munitions of war, shortage of raw material, and defective transport service were placing the manufacturer of goods for the home and export markets at a great disadvantage. He was in the tantalising position of being inundated with orders and unable to deliver the goods. Much of this difficulty was brought about by the shortage of labour, and at least one solution of the difficulty lay in the proper use of the national register. With the information and the offers of service now in the possession of the Government it should be possible to add considerable numbers to the Army, release skilled workers from military service, and fill gaps in factories and transport services with

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From a Sketch by Mr. CHAS. E. BATEMAN, F.R.I.B.A.

whole-time and part-time industrial volunteers. If that could be done manufacturers could greatly increase the output of goods, and as a consequence increase export trade and the production of wealth. The second, and to his mind the more important, demand was the necessity for the overhauling of our business methods, to abandon some of the habits and traditions of our forefathers, and to establish British trade on such a basis as would remove entirely the menace to our commercial supremacy. With the greater application of science to industry, more co-operation among our producers and transport service, with intelligent advice and practical help from a reformed and reconstituted Board of Trade, we could greatly increase our commerce, add tremendously to our national importance, and defy German or any other competitor.

Mr. Charles Marks, managing director of the society, said it was their intention to run travelling exhibitions all over the world, and they hoped at the end of the first twelve months to have fifteen or twenty fully organised. Attached to the exhibitions they would have the best commercial travellers it was possible to get, and the orders they secured would be forwarded to manufacturers once or twice a week.

According to the latest Parliamentary returns (says the *Irish Independent*), the total number of labourers' cottages built in Ireland is 45,592, while there are 1,963 in course of construction. Sums amounting to £8,907,993 have been sanctioned under the Labourers Acts, and the amount required to be raised by rates annually in repayment of these loans is £315,439. The rents received from

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tenants of cottages and flats amount to £128,362. The Exchequer contribution comes to £30,811, and in addition a rate amcunting to over 6½*d.* in the pound on the average has to be raised in the rural districts. More than a third of all the cottages in the country have been erected in the province of Munster, although the valuation of its rural districts is much less than that of the rural districts of either Ulster or Leinster; but the erection of 26,483 cottages in Leinster has cost £51,000 more than was required to provide 18,543 cottages in Munster; only 8,315 cottages have been built in Ulster, and 2,251 in Connaught. Munster has taxed itself to the extent of 9.5*d.* in the pound under its labcurers' schemes, and Ulster only to the extent of 4.2*d.* In the co. Cork alone 7,399 cottages have been erected, or considerably more than three times as many as have been provided in the entire province of Connaught. The number of labcurers' cottages in Ulster is only 916 in excess of the total for Cork county.

COMPETITION NEWS.

IRELAND.—The Gaelic Athletic Association, Ltd., offer a prize of £25 for the best design of a bronze statue of the late Dr. Croke, which it is proposed to set up at Thurles, the base and pedestal to be of Irish limestone or Irish granite. Designs must be sent to the Secretary at Croke Park, Jones's Road, Dublin, not later than October 1.

ILLUSTRATIONS.

SKETCHES IN THE CATHEDRAL CITY OF WELLS.

THESE sketches by Mr. Bateman are admirable examples of the holiday work of a busy architect, as well as charming mementos of the beauties of Somerset architecture.

SIR CHARLES BARRY, R.A., F.R.S., 1795-1860.

By ALBERT E. BULLOCK, A.R.I.B.A.

(*Concluded from last week.*)

STAFFORD HOUSE, built originally by Benjamin Wyatt (now Lancaster House), the home of the London Museum, was recently the gift of Sir W. H. Lever to the nation. It was added to by Sir Charles Barry in 1835, and presents within all the gilded splendour of a palace. The state rooms with their painted ceilings and Versailles style of execution have the stateliest effect imaginable.

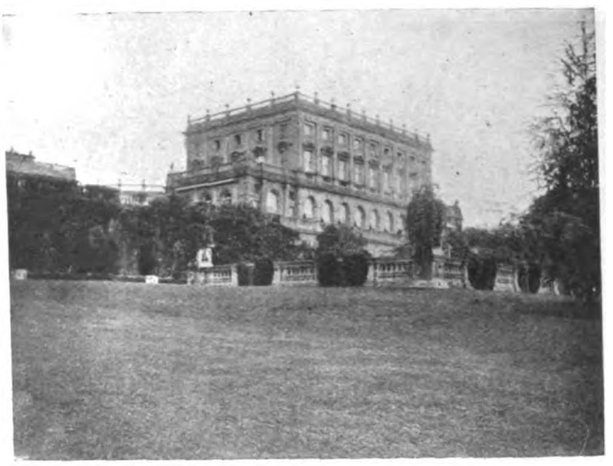
A number of the rooms on the ground floor seem to have received subsequent alteration as they do not harmonise with the treatment accorded to the rooms on the first floor. The ante-room between the long saloon and the drawing-room behind the front balcony is a charmingly finished apartment both in planning and design, while the chimney-pieces in the adjoining room are of more interest than the average, if, indeed, they are from the designs of Barry, a feature which he did not as a rule seem to consider of primary importance.

The Offices in Whitehall forming the Treasury Chambers, &c., situated between the Scottish Office (emblem of the skill of Henry Holland) and the Home Office, by Sir Gilbert Scott, were refaced as regards the Whitehall front by Sir Charles Barry, who removed the insulated columns which formed part of Sir John Soane's design, substituting attached columns. Much of the older buildings in the rear are decorated in the manner of the work of Inigo Jones, probably by William Kent. Some ceiling detail is obviously directly copied from the Great Hall of Queen Henrietta Maria's House at Greenwich, pointing to the originator being a member of the Chiswick fraternity.

The Treasury block was incorporated at a later date in a great scheme prepared by Barry and publicly exhibited in 1857 for concentrating the Government Offices in one huge block of offices, utilising the Treasury block as the right wing and extending as far as Great George Street to the south, with the west front facing St. James's Park, covering an area of nearly fourteen acres of land. The drawings illustrated from Barry's scheme were published in the *Builder* for January 5, 1901, the greater portion of the scheme being carried out piecemeal in more recent times in the erection of the Home Office and the Local Government Board's Offices.

The lay-out of Trafalgar Square was executed from the designs of Barry, who also made several designs for rebuilding the National Gallery, sketches for which are in the possession of Sir John Wolfe Barry.

Clieveden House, the residence of H. W. Astor, Esq., has been entirely redecorated within since its erection, but Barry's grand building remains intact with its garden-



CLIEVEDEN HOUSE.



CLIEVEDEN HOUSE.—GARDEN ALCOVE.

pavilions, and is by far the most imposing of the mansions in the Thames Valley.

Mount Felix, Lord Tankerville's Villa at Walton, has recently changed hands and will shortly be made into a club house. The mansion is of dignified proportions with Classical treatment to façades and terraces, while the gate piers at the entrance are of dwarfed nature with a niche in each.

The central portion of Pentonville Prison with the great carriage drive, wall and porte-cochère were executed from the designs of Sir Charles Barry, the planning of the prison wards and other buildings being by Sir Joshua Jebb.

The original portico, which was formerly placed centrally and supported upon the retaining wall, was moved within recent years and other alterations made on the south side of the main entrance by Major Rogers, who kindly showed the original drawings signed by Barry to the author of this article.

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The finest conception for reforming a country mansion was the unexecuted design for Clumber House, Nottinghamshire, for the Duke of Newcastle. This was one of Sir Charles's best designs, and embraces all the grandeur of his former productions in plan and symmetrical treatment. A clear passage was shown through the centre of the building from the large enclosed entrance quadrangle to the terrace. The approach was to be between two gate-houses to a porte-cochère. The compartments within comprised the outer and inner halls leading to a great hall and main staircase. On the terrace front was placed the saloon.

The foreground on the lake side was to be occupied by a compact formal garden with parterres, fountains, and other architectural features, the windows of the house looking over the lake to the charming expanse of wooded distance beyond.

Halifax Town Hall, although designed by Sir Charles Barry, was erected by his son, E. M. Barry, R.A., who introduced certain variations. The original drawings are preserved among the archives of the Corporation.

Sir Charles Barry excelled in architectural gardening with the most picturesque development of forecourts, terraces, formal gardens, and lawns. In this connection he was concerned with the laying out of Queen's Park, Brighton; alterations to Bowood for Lord Lansdowne in 1835; Trentham Hall, Harewood House, and Shrublands Park, near Ipswich. In addition to which may be mentioned Clieveden House and Duncombe Park which received their due meed of attention in this respect.

Trentham Hall was demolished in 1911, and the gardens bought as a pleasaunce for the county. It was designed for the Duke of Sutherland upon a very flat site adjacent to the Trent River, and the grounds were laid out with the assistance of Nesfield, who was also concerned with Barry some years later in the lay-out at Harewood. A conspicuous feature of the grounds is a bronze statue of Perseus, by Benvenuto Cellini, placed on a circular stone platform centrally with the lake, surrounded by a handsome balustrade.

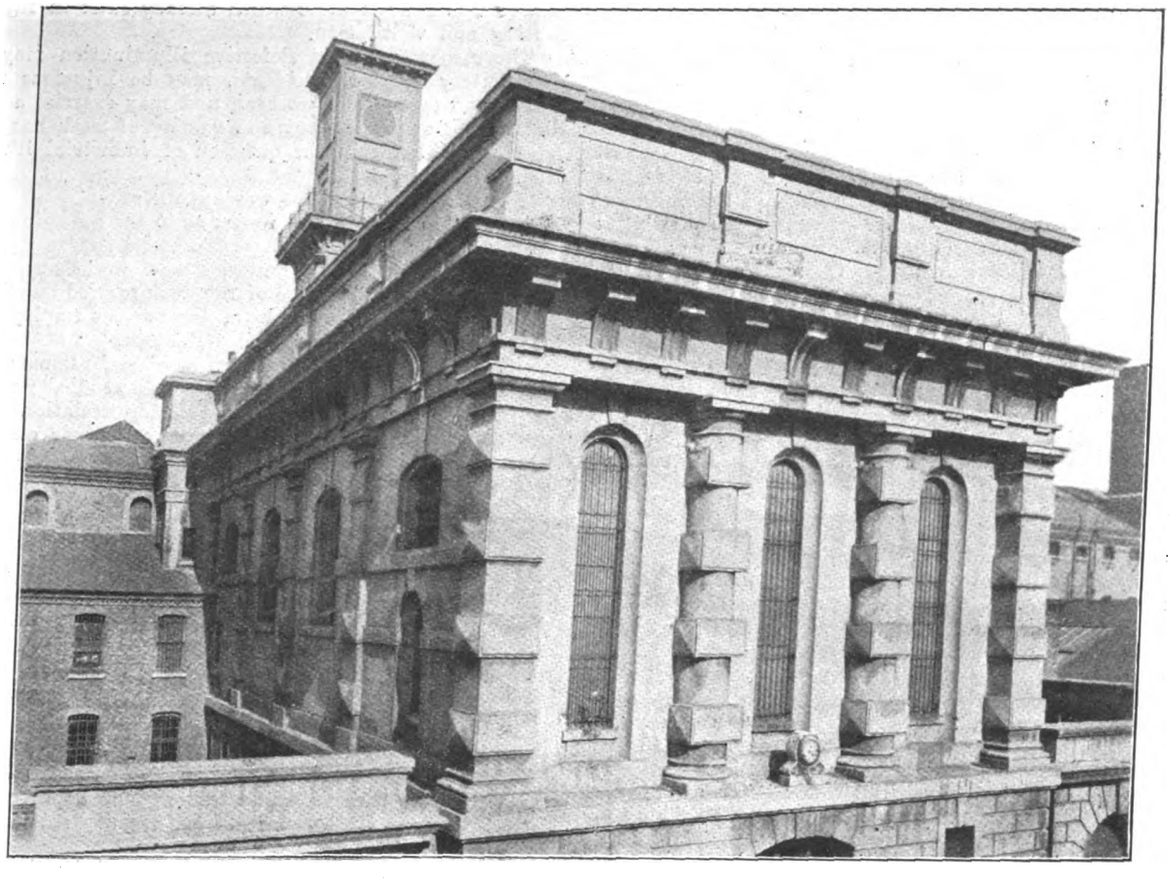
Some eighty acres of the four hundred acre estate was planted with beech trees and rhododendrons.

Harewood House, Leeds, was originally built by John Carr, of York (1723-1807). It was added to by Sir Charles Barry between 1842 and 1854, and is, with the exception of Castle Howard, the finest estate in Yorkshire. The earlier efforts of Lancelot Brown were supplanted by Nesfield, with the assistance of the chisel of John Thomas the sculptor (1813-62), who won renown at the Houses of Parliament a decade earlier.

The grand terraces flanked by twin sphinx on pedestals, the groups of amorini, the terrace balustrading with semi-circular embayments, and the general lay-out of the lower terrace with the fine view beyond all testify to the exalted and inexhaustible originality of the architect. The grounds occupy 150 acres of a park extending to nearly 2,000 acres extent.

Within the house the skill of the foremost artists was employed to paint the ceilings as Rose Rebecci and Zucchi, while the great gallery 80 feet by 30 feet, contains a collection of china valued at £100,000. The work of Zucchi would obviously be to a part of the old house.

If the gardens of Harewood are fine and stately, what shall be said of Shrublands Park, the seat of Sir William Fowle Middleton, recently occupied by Baron de Saumarez? Here with axial exactitude has the architect subdivided his area and disposed his architectural ornaments with a sparing precision worthy of the greatest of artists. Nothing could be more artistic than the great garden stairway which descends between tall elms to the pleasaunce below sweeping in a semi-circle on to the lawn, where Irish yews are stationed, their columnar forms seeming like sentinels left on guard. At the top of this stairway is a finely sculptured temple, while a pavilion terminates the axial vista from the terrace.



PENTONVILLE PRISON.—CHAPEL.

An æsthetic point in Barry's treatment of garden architecture is the variation of the size and spacing of balustrading according to its position. Mr. Leyland has very graphically described the gardens at Shrublands in his article upon the subject, published in "Gardens, Old and New."

Our subject had an extraordinary capability of encompassing a difficulty and producing therefrom the most original development of ideas. The eminently satisfactory results of all his executed designs show what a power he had of grasping a situation at a glance, as it were, and deducing those happy compositions which have made his name famous to posterity.

The key note of the Houses of Parliament is considered to be found in the design for the Birmingham Free Grammar School, erected in 1833, there being certain points in common in the character of the two buildings. It was recognised at the time and can still be seen to mark an important

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step of improvement in modern Gothic architecture for civil buildings.

It was during the erection of this school that Barry made the acquaintance of two young men, A. W. Pugin and John Thomas, who became useful assistants in the design and erection of the Parliament Buildings.

This immense block of buildings occupied some twenty years of Barry's life. He was obliged to co-operate in the heating with Dr. Reid at first in his complicated system of ventilation, and in the foundations with Mr. James Walker. The former arrangement was very unsatisfactory, Barry having also to suffer the severe criticism of current newspapers and the strictures of jealousy from disappointed competitors. Mr. Goldsworthy Gurney succeeded Dr. Reid in the works of ventilation and heating.

St. Stephen's Crypt and cloisters and Westminster Hall were restored and incorporated in the new buildings, apart from which the remaining buildings and towers were erected from Barry's designs. Much of the work of Sir John Soane who had preceded him was destroyed by fire and afterwards removed.

It is greatly to be regretted that the superstructure of St. Stephen's Chapel was so much damaged in the great fire of 1834 that it had to be demolished. It was one of the finest examples in Europe of fourteenth-century ecclesiastical Gothic, and a worthy peer of La Sainte Chapelle at Paris. It was maimed and desecrated at the dissolution of ecclesiastical foundations in the sixteenth century and made into the House of Commons in the seventeenth century; its beautiful architecture, except for some antiquarian research in 1800, was hidden by miserable wooden enclosures and almost forgotten. The fire swept all these hideous excrescences away and revealed the beauty of the building, but, alas! vandalism and the fire prevented the possibility of repair and the hall and crypt only remain. Sir C. Barry commissioned a well-known artist, George Moore, to make sketches of the ruins, and copies of these sketches have lately been presented to the nation and hang on the walls of the Houses of Parliament at the entrance from the river front to the waiting hall leading to the central hall.

The most regular and interesting elevation is that facing the river, the uniformity of treatment being most apparent from the position of the south-east corner. The grouping as observed from the Lambeth side of the river is very satisfactory and complete.

Barry, down to the end of his life, greatly desired to complete the Houses of Parliament by the enclosure of New Palace Yard and the erection of a noble angle gateway facing Parliament Street. The clock tower was intended to form the eastern corner of this composition, and the lower storeys of the tower were left in brickwork, and an arch in stone made over the brickwork in order to facilitate the incorporation of the tower with the intended buildings which would face Bridge Street, thus continuing the line of Westminster Bridge. From the angle gateway there would have been another facade facing Parliament Square to join St. Stephen's Porch. It was shown in 1853 that the rentals paid by Government in Westminster amounted to £37,000 for accommodation for Royal and Parliamentary Commissions and similar purposes, which would have been saved and would pay interest on the cost of the project. The rentals now must be much more. It is to be hoped that at some future time this completion of the Houses of Parliament so much desired by the architect may be undertaken, and that the building may possess at its north-western angle an entrance gateway as worthy in its way as the grand entrance at the south-west angle beneath the noble Victoria Tower.

Sir Charles Barry was appointed a member of the Royal Commission which was formed to select a district for the foundation of new museums connected with, and being an extension of, the British Museum, which finally decided upon South Kensington as the most favourable position. In his report Sir Charles pointed out the many advantages such a site offered, and the result achieved since his decease has proved the wisdom of his recommendation.

Among his pupils may be mentioned the names of Robert P. Banks, G. Somers Clark, and John Gibson, while two of his sons and grandson have followed the profession, becoming eminent through the merits and extent of their work.

In opening our remarks allusion was made to the extensive qualifications and honours that were enjoyed by Sir Charles Barry in his latter years, and it needs only to be added that to his efforts in furthering the work of public improvements, from his very able and practical suggestions and advice, we owe many of the educational advantages enjoyed by our students to-day.

He sank to rest on May 12, 1860, at his residence, "The Elms," Clapham Common, and was given a public funeral at Westminster Abbey on the 22nd day of that month, which 500 of his workmen attended besides many relations, friends, and members of the chief learned societies.

A very fine sedent statue of Sir C. Barry by John Foley, R.A., was placed by public subscription, with the permission of Government, in the Waiting Hall of the Houses of Parliament leading to the Libraries and Committee Rooms of the two Houses, and a monumental brass to Barry's memory is in the nave of Westminster Abbey. Several portraits in oil exist of the great architect, one at least of which is in the National Portrait Gallery.

MEMORANDUM ON THE FIRST REPORT OF THE DEPARTMENTAL COMMITTEE ON LIGHTING IN FACTORIES AND WORKSHOPS

THE development of industrial operations and the introduction of many new methods of illumination during the last ten years have served to emphasise the need for statutory requirements relating to the lighting of workshops and factories, similar to those which already exist in regard to heating and ventilation.

The recognition that defective illumination may be a contributory cause to accidents, may be injurious to the health and eyesight of workers, and may exercise a prejudicial effect on the output and quality of work has led to a general interest in the question of industrial illumination.

The present Committee was appointed—

> "to inquire and report as to the conditions necessary for the adequate and suitable lighting (natural and artificial) of factories and workshops, having regard to the nature of the work carried on, the protection of the eyesight of the persons employed, and the various forms of illumination."

This memorandum is intended as a brief summary of the principal contents of the Report and Appendices; reference to these is necessary for the full appreciation of the reasons which have led the Committee to their conclusions and of the facts on which they are based.

Existing Legislation.

For the United Kingdom no general provisions in regard to lighting (analogous to those regarding heating and ventilation) occur in the Factory Acts, although adequate lighting in general terms is included among the conditions to be satisfied in underground bakehouses, and is required in certain dangerous trades.

On the other hand, the codes of all the chief European countries, the United States, and India contain provisions requiring adequate lighting in factories.

Nature of Inquiry.

The appointment of the Committee in regard to industrial lighting thus marks an entirely new departure in this country. The novel nature of the inquiry entailed special methods of investigation.

In view of the wide ground covered by the terms of reference it was considered advisable to limit the inquiry in the first instance as far as possible to the engineering, textile, and clothing trades. Evidence was received from fifty witnesses, including H.M. Inspectors of Factories and representatives of various trade associations and scientific and technical societies.

The members of the Committee also paid a series of visits to various industrial centres, eighty-five works being visited. In connection with these visits about 4,000 measurements of illumination were made in 163 rooms in fifty-seven factories, the data, as a rule, being prepared previously to the visit. In this way the members were able to form a clear conception of the conditions represented by a certain numerical value for the working illumination and to compare this with the figures mentioned by various witnesses and found in the existing literature on the subject.

Certain experiments bearing on the standards of illumination required for various purposes were also carried out at the National Physical Laboratory.

Effects of Bad Lighting.

The inquiry showed that there has been a great advance in methods of illumination, but various defects were met

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with which are enumerated in the report. In taking evidence and in the study of existing literature the Committee endeavoured to obtain particulars of the effect of unsatisfactory lighting.

A statistical inquiry into the number of accidents during each month throughout the year points to the conclusion that inadequate lighting is a contributory cause of accidents. This is confirmed by the evidence of witnesses, regarding accidents in foundries, shipbuilding yards, and cotton mills, and by the statements of the Accident Offices' Association, which embraces most of the insurance companies interested in the Workman's Compensation Act.

Complaints of eye strain, headache, &c., attributed to insufficient lighting are common, and while an exhaustive medical inquiry would be necessary to establish the connection between these defects and inadequate lighting, there is a general impression that unsatisfactory lighting is, in various ways, prejudicial to health. It is also recognised that insufficient light adds to the difficulty of the proper supervision of work, and of the maintenance of cleanliness and sanitary conditions generally.

Witnesses gave specific instances of the effect of improved lighting in increasing the output and improving the quality of work turned out.

Recommendations.

From the evidence taken it is apparent that there is a general consensus of opinion as to the economic and hygienic advantages of adequate and suitable lighting. That this opinion is based on experience is shown by the great improvement in lighting which has taken place during recent years, and is still continuing, and in modern factories good lighting is now regarded as one of the most important factors contributing to industrial efficiency. On the other hand, many employers have lagged behind in the general advance. This refers especially to old factories, and it is obvious that any requirement which would tend to bring such places up to the level of more progressive firms would be beneficial, not only to the operative by improving his working conditions, but also to the employer himself by increasing his output and by improving the quality of work. Light is a cheap commodity, and little or no hardship should result from such a requirement, if gradually and sympathetically enforced.

The Committee therefore recommend that:—

(1) There should be a statutory provision:—

(*a*) requiring adequate and suitable lighting in general terms in every part of a factory or workshop, and

(*b*) giving power to the Secretary of State to make Orders defining adequate and suitable illumination for factories and workshops or for any parts thereof or for any processes carried on therein.

It is further necessary to indicate more precisely what is conveyed by the term "adequate lighting." Broadly, the illumination may be said to be adequate and suitable provided that:—

(i.) it is sufficient for the proper carrying out of the work both as regards quality and output, and

(ii.) there are no lighting conditions prejudicial to the health, comfort, and safety of workers.

In order to satisfy these requirements, the illumination should comply with the following requirements:—

(*a*) Adequacy.

(*b*) A reasonable degree of constancy and uniformity of illumination over the necessary area of work.

(*c*) The placing or shading of lamps so that the light from them does not fall directly in the eyes of an operator when engaged on his work, or when looking horizontally across the workroom.

(*d*) The placing of lights so as to avoid the casting of extraneous shadows on the work.

The next question is the desirability of specifying the amount of illumination implied in the terms "adequate and suitable." Owing to the great progress that has recently been made in the appliances for measuring illumination (the nature of which is explained in the report), it is now practicable to specify numerical values in a manner that would hardly have been possible some years ago.

It is therefore proposed to specify the minimum intensity of illumination desirable, from the standpoint of general convenience and safety in parts of the workshops where work is normally carried on, and in yards, passages, and open spaces along which people are ordinarily liable to pass.

The following four recommendations are made under this head:—

(2) Over the "working areas" of workrooms the illumination measured on a horizontal plane at floor level shall not be less than 0.25 foot-candle, without prejudice to the illumination required for the work itself.

(3) In all parts of foundries in which work is carried on or over which any person is ordinarily liable to pass, the illumination measured on a horizontal plane at floor level shall not be less than 0.4 foot-candle.

(4) In all parts of factories and workshops (not included under recommendation (2)) over which persons employed are liable to pass the illumination measured on a horizontal plane at floor level shall not be less than 0.1 foot-candle.

(5) In all open places in which persons are employed during the period between one hour after sunset and one hour before sunrise, and in any dangerous parts of the regular road or way over a yard or other space forming the approach to any place of work, the illumination on a horizontal plane at ground level shall not be less than 0.05 foot-candle.

These values are suggested without prejudice to the special illumination required for the carrying out of the work, which naturally varies greatly according to the nature of the operations. At present the Committee are not prepared to recommend standards of illumination for these purposes, which require further investigation.

In Recommendation (6) provision is made for exemption of individual cases, and of factories to which the above requirements could not be applied, and the case of shipbuilding yards is to receive separate consideration.

Finally, in Recommendation (7) suggestions are made for the periodic cleaning of windows.

In conclusion the Committee point out that the minimum values prescribed are considerably lower than those proposed by many witnesses, and are also lower than those found to exist in the majority of factories visited. In many cases manufacturers would naturally prefer to provide a substantially higher value than that indicated. The intention has been to propose values which can be adopted as a practical legal minimum without causing hardship, and would serve the purpose of raising the level of illumination in those factories which are behind modern practice in regard to methods of illumination.

The Committee did not feel justified in drawing any distinction between direct, indirect, and semi-indirect lighting, nor between systems which differ in the colour composition of the light. Similarly the standards are intended to apply equally to natural and artificial lighting; that is to say, when the natural illumination falls below the prescribed limits, it must be supplemented or replaced by artificial illumination.

The data given in the appendices will be of service to those engaged in designing new factories and in examining the adequacy of lighting in existing buildings. At present there are few collated data of this character available, and the desire not to withhold them longer from publication is a further reason for the submission of a preliminary report at this stage.

Adequate artificial lighting is an important matter in the utilisation of factories for night work, and a close connection appears to exist between the lighting conditions and the quality and output of work. The information contained in the report should therefore be of special interest at the present moment, when many factories are working overtime, and preparations are being made for the period of the year when artificial lighting is mainly required.

AT last week's meeting of the Glasgow Town Council there was hung on the wall of the Council Chamber the picture which the Corporation commissioned Mr. John Hassall, R.I., to paint in commemoration of the 600th anniversary of the Battle of Bannockburn. The subject chosen is "The Morning of Bannockburn," and the Scottish soldiers are shown in the grey dawn kneeling in prayer, the Scottish Standard and the St. Andrew's Cross floating over them. The picture is to be shown at the forthcoming exhibition of the Royal Glasgow Institute of the Fine Arts, and will thereafter be hung in the Kelvingrove Art Galleries.

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THE LATE MR. W. H. LYNN, R.H.A.

THE following excellent obituary notice appears in *The Belfast News-Letter*: We regret to announce the death of Mr. William Henry Lynn, one of the best known architects in Ireland, who passed away on the 12th inst., after a brief illness, at his residence, Ardavon, Antrim Road, Belfast. Mr. Lynn, although in his eighty-seventh year, was in good health until a few days ago, when he caught a chill, and was obliged to take to his bed. He was attended by Dr. John J. Austin and Professor Sir William Whitla, M.D., the latter having been called in as consultant, but the patient's advanced age militated against his chances of recovery, and he died on Sunday, as stated. A son of the late Lieutenant Henry Lynn, R.N., of Cairncastle, near Larne, the deceased had spent the whole of his professional career in Belfast, but his reputation extended far beyond the boundaries of this city, and public and private buildings designed by him are to be seen in various parts of England and Scotland, as well as in some of the principal towns and cities of his native country. Incidentally, it may be mentioned that his artistic skill was n a great measure shared by his only brother, the late Mr. Samuel Lynn, who was a pupil of John Henry Foley, the eminent Irish sculptor. Amongst the works executed by Mr. Samuel Lynn one may single out the statue of the Prince Consort on the Albert Memorial in Queen's Square, Belfast; the memorial to the late Rev. Dr. Cooke, opposite the Royal Belfast Academical Institution, in College Square East; and a statue of the fourth Marquis of Downshire. Mr. W. H. Lynn, whose death is now recorded, was as a youth apprenticed to Sir Charles Lanyon, an architect and engineer of outstanding ability. At that time the Right Honourable Robert Young, J.P., who, happily, is still amongst us, was acting as manager for Sir Charles, and a few years later, when Mr. Lynn had succeeded to the position, Mr. (afterwards Sir Thomas) Drew became one of his colleagues. Dr. R. Kyle Knox, J.P., a gentleman well known and highly respected in local banking circles, was also an apprentice in the office of Sir Charles Lanyon, and served under Mr. Lynn, with whom he formed a friendship, which steadily ripened and strengthened with the passing of the years.

In 1850 Mr. Lynn was clerk of works in connection with the County Antrim Courthouse, Crumlin Road, Belfast, which was designed by Sir Charles Lanyon, who, it may be recalled, added to his many professional activities the work of county surveyor. The relations between Sir Charles and his pupil, who early gave evidence of that wonderful skill and judgment which subsequently found expression in his architectural designs, were always of the most cordial character, and some time during the "fifties" Mr. Lynn was taken into partnership. Messrs. Lanyon & Lynn, the name by which the firm was known after the partnership was established, were entrusted with the designing of the new Custom House, which, completed in 1857, is a very stately and imposing architectural pile—one of the largest and most ornate buildings in Belfast. Subsequently Mr. Lynn submitted a number of competitive designs for buildings in various parts of the United Kingdom. He had the satisfaction of having his design accepted for the commanding monument on Scrabo Hill, which perpetuates the memory of the third Marquis of Londonderry, a noted soldier and statesman. In 1862 he prepared plans for the Carlisle Bridge in Dublin, but, to the disappointment of many of his colleagues who had seen and admired his designs, they did not get first place in the competition. About this time he was selected as architect for the new Town Halls at Chester and Barrow-in-Furness respectively, and was awarded the premier prize for his plans for new Government offices and a Parliament House which it was then proposed to erect at Sydney, New South Wales, but for some reason or other the scheme was not proceeded with further. In 1875 he went to Canada, on the invitation of the Marquis of Dufferin and Ava, who was then the Governor-General, and designed a block of buildings called the Chateau of St. Louis, which were intended for occupation as Government offices. He was a competitor for the designing of the Law Courts and Corporation buildings at Birmingham, but although his plans were full of that dignity which was characteristic of all his work he did not secure the commission. Killyleagh Castle, County Down, and the mansion belonging to Mr. James Bruce, D.L., at Benburb, County Tyrone, were also built to plans prepared by him, and it was under his direction and in accordance with his designs that the Belfast Harbour Offices were remodelled and extended about twenty years ago. He seemed to have mastered all branches of his art, and as an example of his talent in industrial architecture, as it might be termed, one may point to the extensive premises owned by Messrs. Herdman & Co., Sion Mills, County Tyrone. The handsome warehouses and offices belonging to Messrs. Richardson, Sons & Owden, Ltd., Donegall Square North, were also built to his designs. One of his most attractive designs was that which was carried out in connection with the erection of the residence of the Earl of Kenmare at Killarney. This mansion, which was built on an eminence overlooking the lower lake, in the midst of scenery unrivalled for charm and grandeur, was unfortunately destroyed by fire some months ago, but the outer walls remain to show the nature of the structure and to indicate its former glory. Mr. Lynn was the designer of St. Paul's Church, York Road, Belfast; St. Patrick's Church, Jordanstown, which, built in the Irish Romanesque style, is distinguished by the possession of a round tower; and one or two other churches in Dublin. After the death of Sir Thomas Drew, Mr. Lynn became honorary architect in connection with Belfast Cathedral, and it is stated that one of his last designs was for a baptistry which it is proposed to erect in that edifice.

In 1910, when he was in his eighty-second year, Mr. Lynn gave a signal proof of his marvellous powers of mind and hand by preparing a design for the extension of Queen's University, a work rendered necessary by the growing usefulness and popularity of this centre of learning. Designs were also sent in by many of the leading architects of the country. The assessor was Sir Aston Webb, R.A., who was so much impressed by the excellence of Mr. Lynn's plans that he had very little hesitation in recommending their acceptance by the Senate. The extension has now practically been completed, and no one who sees it can fail to realise the strength and dignity with which it has been planned. Up to the very last Mr. Lynn's faculties were unimpaired, and his keen understanding, clearness of vision, and vitality of manner were a source of amazement and admiration to his friends. It was his custom to prepare his plans with his own hands, and this conscientiousness on his part probably accounted to some extent for the care and accuracy with which the details of his designs were thought out and set down. One of his few hobbies was painting in water colours, an art in which he showed both taste and facility. In the "sixties" Sir Charles Lanyon's son joined his father and Mr. Lynn in the practice, but after the death of the founder of the firm the partnership between the two surviving principals was dissolved. The deceased was a man of very retiring disposition, and had a positive dislike of anything in the nature of notoriety. Whatever success he achieved—and it was far beyond that which falls to the lot of most men—was due to his own merits—his industry, insight, imaginative power, and good sense. The deceased was a member of the Royal Hibernian Academy, and at one time he was also a Fellow of the Royal Institute of British Architects. He was accustomed to worship at the Cathedral, in the erection of which he took a very deep interest. In politics he was a staunch Unionist, but his ingrained modesty, no less than his inclinations, prevented him from taking any active part in public affairs. The deceased was a bachelor.

THE Scottish Society of Halifax, Nova Scotia, are seeking permission to set up a copy, with certain modifications, of the Burns statue at Ayr. This statue, which was erected in 1891 at a cost of £2,500, is from the design of Mr. G. A. Lawson, sculptor, of London. The Halifax Society state that an original work is beyond their means.

THE Cult of London, a new antiquarian society, has set an ambitious programme before itself for the new season. There is to be a "ramble" on practically every Saturday until the close of the year. Some of the most interesting of the City churches, the British Museum, Lambeth Palace, the Record Office, and Westminster Abbey, are included in the itinerary. Mrs. Hylton Dale, 38 Elm Park Gardens, S.W., is the hon. secretary.

MR. G. LISTER SUTCLIFFE, F.R.I.B.A., died on Sunday last at Hampstead, in his fifty-first year, and the funeral service was held yesterday at Rosslyn Hill Chapel. The deceased architect was responsible for a considerable amount of domestic work, and of latter years has been actively associated with the Co-partnership Tenants' Housing Council. He was also known for his editorship of such works as "Modern House Construction" (two vols.); "The Modern Carpenter, Joiner, &c.," "The Modern Plumber and Engineer," and "Sanitary Fittings and Plumbing."

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EXCAVATIONS ON ROMAN SITES IN BRITAIN.

Two years ago the British Association appointed a Committee, consisting of Professor Ridgeway (Chairman), Professor R. C. Bosanquet (Secretary), Dr. T. Ashby, Mr. Willoughby Gardner, and Professor J. L. Myres, to co-operate with Local Committees in Excavations on Roman Sites in Britain.

The Committee was reappointed in September, 1913, with a grant of £20. This sum was divided in equal shares between (1) the Committee of the Abergele Antiquarian Association, which in conjunction with the Cambrian Archæological Association is exploring the hill-fort in Parc-y-meirch Wood, Denbighshire; and (2) the Committee representing the Society of Antiquaries and the Shropshire Archæological Society, which is excavating the Roman town of Uriconium (Wroxeter).

Owing to the early date fixed for the delivery of reports in 1914 it was not possible for the excavators to present the results of work done that summer in time for the Australian Meeting, and the Committee therefore submitted an interim statement, explaining that fuller accounts of the results obtained on both sites would be presented in 1915. These are appended to the present Report.

(1) *Dinorben.* Previous discoveries on the Denbighshire site were described by the excavator, Mr. Willoughby Gardner, in papers laid before the British Association in 1912 and 1913. The work of 1914 threw further light on the extent and character of the fourth-century occupation, but was chiefly directed to tracing the growth of the fortifications and endeavouring to correlate the successive entrances, ramparts, and ditches. It is now clear that the main south-east gate, with its successive roadways and guard-houses, was not the original entrance; an earlier gate, destroyed by fire, has been found embedded in the stone rampart a few yards to the east, and the road belonging to it has also been laid bare. An early rampart, corresponding with this gateway in its mixed stone-and-timber construction and showing still plainer evidence of a great conflagration, has been traced under the guard-houses and main rampart on the west of the south-east entrance. The dissection of the enormous main rampart has been continued and the finding of revetment-walls gives a clue to two, if not three, periods of construction. The ditches which Mr. Gardner in his previous Report explained as perhaps constructed in the first century of our era, when native forts were hastily strengthened in view of Roman attacks, have been further explored; wherever examined they show the same phenomenon, a filling of freshly quarried stone, the unmistakable *débris* of a stone rampart overthrown soon after its erection. Owing to the dearth of pottery and other characteristic finds, Mr. Gardner does not at present assign dates to the successive stages in the history of the stronghold. He has shown much ingenuity and patience in surmounting the natural obstacles presented by this exceptionally difficult site, and his plans, sections, photographs, and records of levels are full and accurate. The Committee hopes that he may be enabled to continue this very promising investigation.

(2) *Uricomium* (Wroxeter). The scheme for the systematic excavation of this Roman town was laid before the Association at the Birmingham Meeting. The direction of the work is in the hands of Mr. J. P. Bushe-Fox, who had previously worked with distinction at Corbridge and at Hengistbury Head. Two detailed and well-illustrated Reports on the work of 1912 and 1913 have been issued by the Society of Antiquaries, and that for 1914 is in the press; the appended statement gives an interesting summary of the results gained during these three seasons in an undertaking that may fairly be described as of national importance. The Committee notes with satisfaction the rapid progress that is being made in determining the sequence and dating of Romano-British pottery, thanks to the careful records of stratification kept in recent years at Corbridge, Wroxeter, and other sites.

The Committee asks for reappointment and for a renewal of its grant.

REPORTS TO THE COMMITTEE.

I.

Further Excavations in Dinorben, the ancient Hill Fort in Parc-y-meirch Wood, Kinmel Park, Abergele, North Wales, during 1914. *By* Willoughby Gardner, *F.S.A.*

The excavations in this hill-fort by the Abergele Antiquarian Association and the Cambrian Archæological Association, recorded in Reports of the British Association, 1912, pp. 611-12, and 1913, pp. 231-36, were continued during the summer of 1914. The excavators were again greatly assisted by a Research Committee of Section H of the British Association, whose Secretary, Professor R. C. Bosanquet, spent two days upon the site, and by the Association's grant towards the cost. Work occupied about six weeks; ten labourers and a foreman were employed, as before, and much help was given by amateur assistants. To Colonel Hughes, the owner of the site, warm thanks are again due for continued interest and assistance in numerous ways.

Operations were first directed to the massive dry masonry wall discovered in 1913, running crosswise in the thickness of the main rampart, 18 feet to the E. of the S.E. entrance. As the rampart stood 9 feet high and was 28 feet thick at this point from facing wall in front to casing wall at back, and both these walls were buried behind a further thickness of *débris*, the work was laborious. The bulk of the rampart consisted of rubble-stone, but approaching the ground-level many large slabs and roughly squared stones were encountered near the cross-wall. In places, especially towards the inner side of the rampart, quantities of burnt stone and calcined lime were also found, with fragments of charcoal here and there. At the foot of the wall a well-gravelled surface was uncovered, trodden hard like a road. The cross-wall was laid bare to its foundation, standing 8 feet high for a straight length of 16 feet. At its outer end this massive wall was found to be cut at right angles by the later built facing wall of the rampart, continuous with the side wall of the previously excavated S.E. entrance; at its inner end it turned off sharply 2 feet to the right and then curved round in its first direction for several feet further, forming a shallow recess. There was a groove from top to bottom of the wall at 11 feet from its outer end, 1 foot 6 inches wide and 1 foot deep, and at the foot of this groove there was a hole in the ground stiffened by stone slabs; this groove and hole were evidently for a wooden post built in at the time of construction. At the corner where the wall turned off 2 feet there was a similar post-hole in the ground, 1 foot 6 inches wide, apparently constructed of stones placed within a larger excavated hole. But both these post-holes were difficult of examination owing to the dangerous way in which the wall bulged over them. Opposite to these two post-holes, at a distance of 9 feet from the wall, two other large holes, cut out of the rocky ground, were subsequently unearthed; both contained many flat stones, either set upright or fallen within them, as if for post-holes; there were small pieces of charred wood, possibly remnants of a post, at the bottom of the N.W. hole.

The gravelled road lying between these four holes was traced in an outward direction running beneath and beyond the later facing wall of the rampart; in an inward direction it also continued beneath the back walls of the previously excavated guard-houses and two inner casing-walls of the rampart. It had a width of about 9 feet throughout its course. Curiously, no side wall was found on the W. side of this roadway; one big upright slab embedded alongside the outer post-hole here seemed to be the only stone of such a wall *in situ*. But apparently many of the stones of a former wall were those which were found lying upon the roadway; others had probably been quarried for later constructions.

It seems clear, therefore, that the excavations have brought to light a ruined entrance of still earlier date than the successive entrances unearthed 18 feet W. in 1912 and 1913. This earlier entrance seems to have suffered forcible destruction by the throwing down of its western wall into the passage. Moreover, the quantities of burnt stones and burnt lime, with some charcoal, found in the lower strata of its ruins, point to a conflagration at the same time.

It was noted that the burnt lime layer above the roadway extended beneath the foundations of the two successive guard-houses on this side belonging to the previously excavated S.E. entrances. The only relics found in this early entrance were pieces of broken bone of *Bos* trodden into the roadway, some charcoal, a broken "pot boiler," and a small bone "scraper"—none of which are datable.

This discovery under the rampart on the E. side of the first-found S.E. entrance made it desirable to examine the rampart on its W. side; and this more particularly because ditches 1 and 2 here were found, upon excavation last year, to curve inwards and to end at some distance before reaching the entrance. The rampart at this point is unfortunately very large and four big trees were growing upon it; these were felled and removed; but as the excavation of such a mass of material by barrow and plank in a difficult position

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would have been very laborious, it was decided to employ a ropeway carrier of the "Mond" type (so successfully used in Egyptian excavations), modified to suit the present site. This only came to hand towards the close of our time and did not work upon the steep slope, necessitating a return of portions to the makers for alteration.

Meanwhile a beginning was made upon this rampart from the back, some 25 feet from the S.E. entrance. Here, in the interior area of the hill-fort and up the slope to the present crest of the rampart, fragments of black and red pottery were unearthed, at a depth of about a foot, similar to that found on the same horizon elsewhere. Then burnt lime began to appear, like that discovered in the earlier entrance to the E.; and, finally, a mass of burnt stones and lime was cut through, some 5 feet thick against the rampart and tapering to nothing at a distance of 15 feet towards the interior area of the fort. Near the bottom of this mass and just above original ground level, a quantity of clay, burned red and hard almost like brick, was revealed, and mixed with and under this a great deal of charred wood; some of the wood was as large as if the remains of considerable timbers. Here again, therefore, there would appear to be traces of some great conflagration, apparently belonging to the same period as the lesser traces of fire found in the early entrance. On following up these deposits of burnt lime towards the E., they were found to run beneath the foundations of the guard-houses on this side, belonging to the entrances excavated in 1912 and 1913; again, therefore, marking an episode at some distinctly earlier date. Further explorations beneath this great rampart by aid of the rope carrier are looked forward to with interest.

Turning again to the main rampart N.E. of the S.E. entrance, a cutting was made through it at a point 105 feet distant from the entrance. Its dry masonry outer facing wall, still standing 3 feet high, was discovered beneath fallen *débris* in 1912; its inner face was now found to be marked by a line of big stones with some pitching above, showing a rampart 23 feet thick. The core was of mixed construction and material, and apparently contained an earlier rampart, 15 feet thick, revetted also on its inner side with a stone wall 3 feet high.

Before leaving the neighbourhood of the S.E. entrance excavated in 1912 and 1913, the gravel roads leading therefrom were further investigated. It will be remembered that three superincumbent roads were found in the entrance passage. The upper one, proved by relics to be in use in the fourth century, ran down the slope towards the E.S.E.; at a distance of 45 feet from its outermost post-holes it crossed over the end of ditch 1, the whole length of which had been filled and hidden from sight by stony *débris* at some earlier date. The second road could not be distinguished far beyond the entrance passage, and may have been a local reparation only. The lowest of the three roads, however, was found to run S.S.E. till it was crossed and covered by the end of rampart 3. This lowest road was from 12 to 15 feet wide and was made of small blue gravel laid, 6 inches thick at its centre, upon the original ground surface. Neither of these roads outside the entrance had any "pitching" below or any curbstones at their sides. We thus obtain relative ages for ditch 1 on the E. side and rampart 3 on the W. side of the S.E. entrance. Noteworthy relics unearthed in these investigations were a bronze hook and eye bracelet, with dot and ring ornament, found 1 foot deep, and a small bronze crozier-shaped object, possibly the handle of a key, from about the same depth.

Attention was next directed to the N. end of the stronghold, in continuation of the work previously done there. The buried entrance at the N.E. was further investigated. The position of this entrance was marked down in 1912 by the discovery of a stone-lined post-hole, and was further proved in 1913 by the excavation of a rock causeway leading up to it between the ends of two ditches. The ramparts hereabouts proved to be very ruinous, consisting of little more than rubble-core, with their facing-stones and much of their bulk thrown down into, filling and completely covering up, the ditches in front. When the *débris* which choked this entrance 5 feet deep was removed, it was found to be a passage about 10 feet long and 10 feet wide at right angles through the rampart. No side walls were found; presumably they had been removed when the entrance was destroyed; but four post-holes were unearthed, one pair at either end of the passage. Of these, the one at the right hand on entering was 2 feet deep and stone-lined, and the one on the left was cut in the rock and shallower; at the inner end of the passage, the one on the left was 2 feet deep cut in the rock, and the one on the opposite side shallower; in the deeper one charred wood was found. The roadway ascending steeply through this entrance passage was of rock, the interstices of which were filled in with small blue gravel.

At some date subsequent to the destruction and choking up of this entrance, another and a smaller one seems to have been cut through the *débris*. This was 10 feet long and only 4½ feet wide; portions of its side walls of dry masonry remained standing; two pairs of small shallow post-holes were found cut in the rock, one pair at its entrance and one pair half-way through its length. The roadway through this entrance appeared to be made of large rough gravel, overlaid several inches thick upon the rocky floor of the earlier entrance. At the inner end of this later entrance, the side wall turned at right angles to the left and was traced as a casing wall to the inner side of the rampart for some 12 feet; at this point it was crossed by another curving-wall built at a higher level. The only relics found upon the floors of these two entrances were many broken bones of animals consumed for food, some "pot boilers," and some charcoal, in this as in other respects corresponding with the lower floors of the S.E. entrance. At heights varying from 2 to 3 feet above the lower floor, however, or 2 to 2½ feet deep in the loose *débris* blocking the entrance, fragments of Roman pottery, iron nails, Roman glass beads, and two coins of Constantine, all relics of the fourth century occupation of the stronghold, were unearthed. At a little above the same level, some foundations of a wall-facing ran across the outer end of the passage, showing that at this period there was no entrance here.

Following up the roadway into the hill-fort, some 60 square yards of the interior area were next explored by careful riddling. Considerable quantities of Romano-British relics, including several coins, all similar to those found close by in 1913, were unearthed. These relics were again very near to the present surface; they were for the most part covered by a foot of humus only.

The main rampart at the S.W. side of the hill-fort was then investigated, together with some 55 square yards of the interior area adjacent—the whole of the latter with the riddle. Here, what had come to be known as our "relic bed" was again encountered, between 1 and 1½ feet below the present surface. The bed extended from the level interior area almost up to the crest of the rampart, although objects upon the flat were far more abundant than upon the slope of the rampart. The relics found were practically a repetition of those already recorded from a similar level elsewhere in the hill-fort, with certain additions. These additions included part of a bronze penannular brooch, an interesting bronze gilt ornament (possibly a plate brooch), several earrings and other articles of coiled bronze wire, a bone toggle, a very small iron sickle, part of a horseshoe, a good flint scraper, and, among pottery, fragments of a red incense bowl with fringed rim, fragments of painted white *mortaria* with hammer-head rim, fragments and a rim of "calcite" or "vesicular" ware and several portions of black bowls mended with iron rivets; the latter would seem to show that even the common pottery used here was imported from a distance, or it would hardly have been worth the trouble of repair by riveting.

The rampart here was then cut through from back to front; there was no facing-wall, only a few stones in line which may have been the remnant of one. Some 30 feet behind these stones a low wall apparently marked the back of the rampart. The core was again found to be of mixed material, mostly dry rubble-stone with thick layers of clay in places; its construction seemed to show a later and a larger rampart covering an earlier and a smaller one. At a point 5 feet in front of the present crest and 4 feet below it, the top of a parallel dry stone wall was encountered; this was excavated and found to stand 5 feet high; it was probably the back wall of the earlier rampart. Further, at 11 feet behind this wall and 10 feet below the present crest, the top course of yet another parallel wall was discovered on the closing day of our work; this would seem to belong to a still earlier structure. We regretted the necessity of postponing its exploration, which will require the removal of a great weight of material in order to reach it.

Many fresh cuttings were also made at various points in front of the rampart, in further investigation of visible ditches and ramparts and in search for other ditches suspected but hidden from view by *débris*. Two long cuttings

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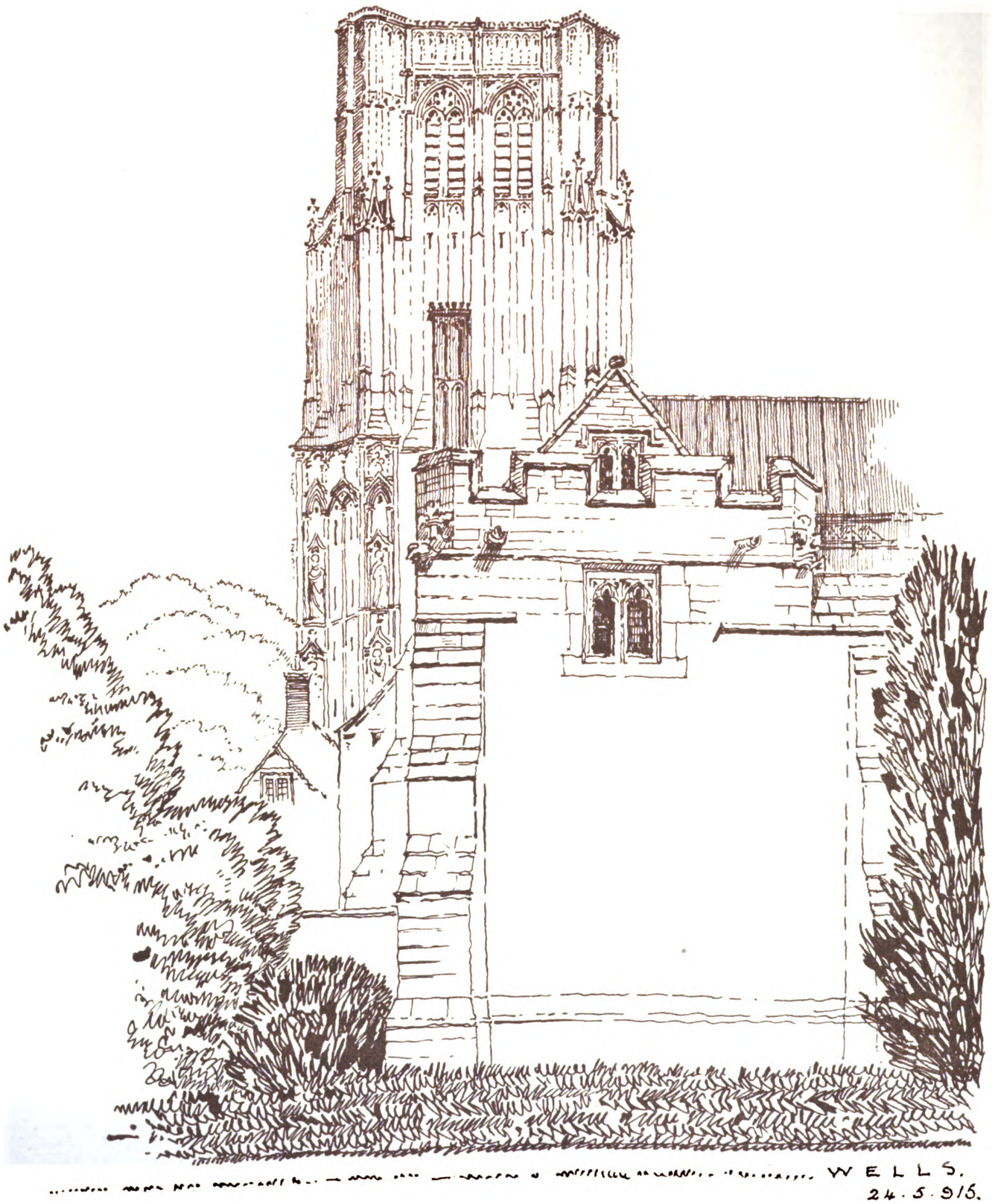
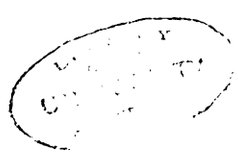


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Sketches in the Cathedral City of Wells.

By Mr. CHAS. E. BATEMAN, F.R.I.B.A

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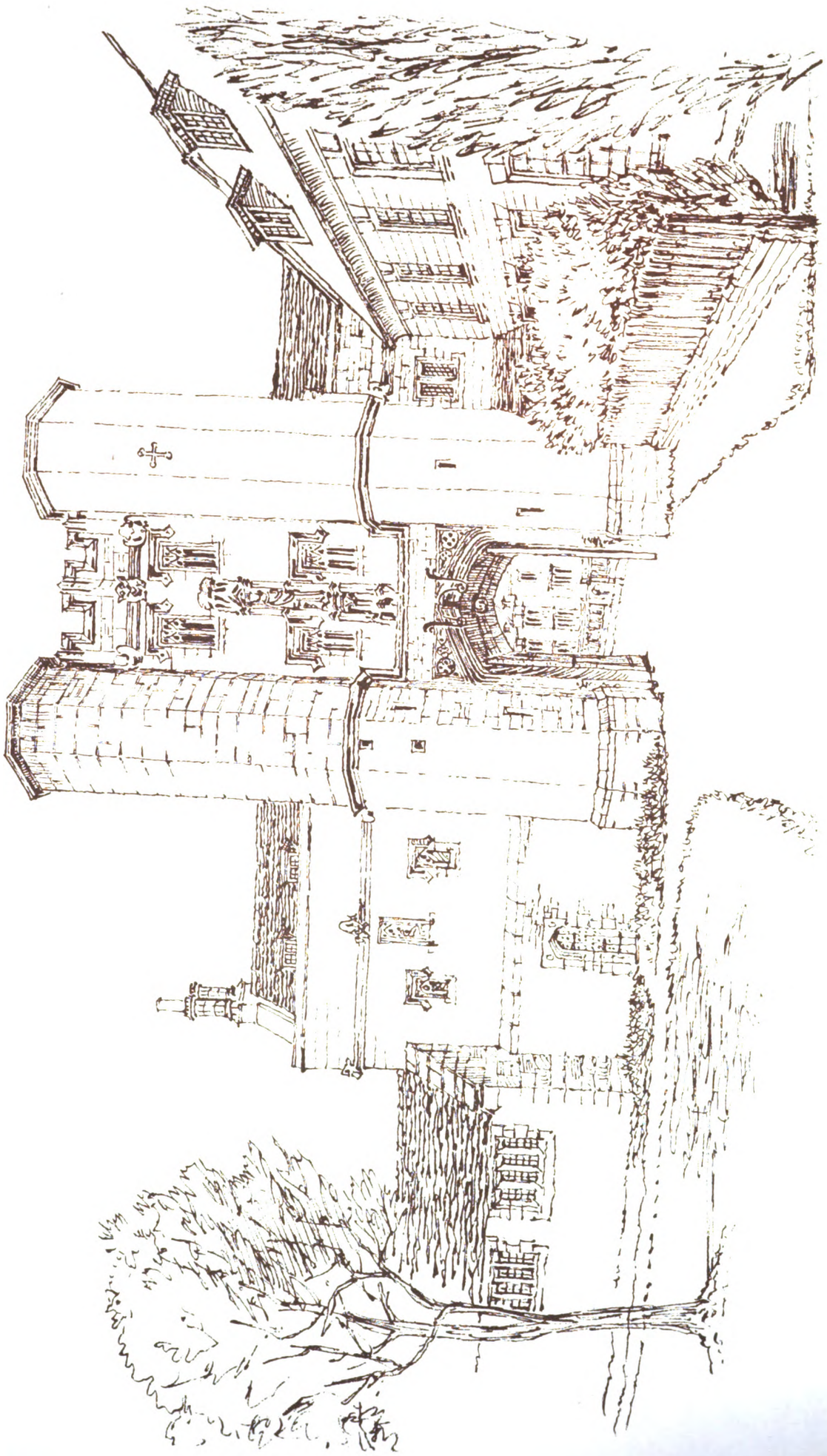
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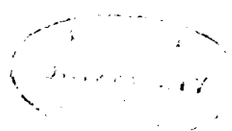
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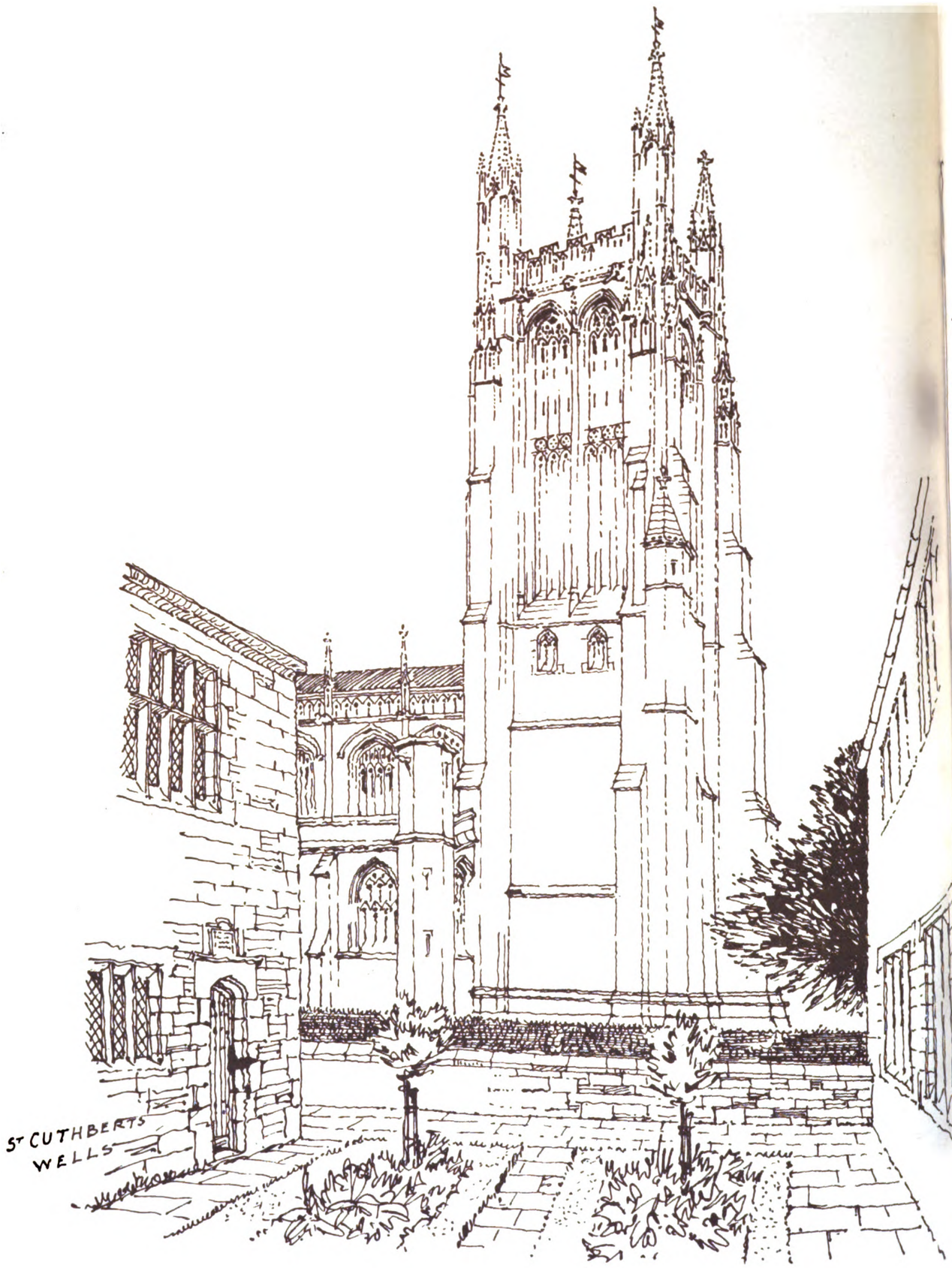
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approximately W.S.W. (on which side of the hill-fort it will be remembered that the main rampart is entirely thrown down) revealed three parallel ditches cut in the rock; two of these had been hidden from sight by fallen *débris*. These three ditches, like others previously excavated, were filled, the first completely and the second and third less so, according to the slope of the hill-side, with clean dry rubble mixed with some larger wall-facing stones. These stones lay upon the rocky bottoms of the ditches with hardly any silting below them, again showing that the main rampart must have been thrown down soon after these ditches were cut.

Part of the rocky berm excavated between the site of the main rampart and the first ditch revealed an unexpected layer of clay and gravel beneath the superincumbent stones; this was dug through, 2 feet thick, and beneath it, in each section, another and an earlier ditch cut in the rock, 5 feet deep and 7 feet wide, was brought to light. This ditch again was filled nearly to its brim with dry rubble stones, beneath which there were 1 to 3 inches of silting on the bottom of the ditch. These rubble stones must represent the ruins of a former rampart above of corresponding age; and the probable foundations of such a rampart were seen in the westernmost cutting.

In one of the cuttings made in 1913 to the S.S.E., which had revealed previously hidden first and second ditches cut in the earth, some curious features were then noted beneath the second rampart; these called for further investigation when timber could be obtained to make the deep excavation safe. This year the cutting was dug deeper, with the result that below the artificially laid clay of the second rampart another and an older wide ditch, partly cut in rock, was here also brought to light; this ditch was likewise found to be half filled with dry fallen rubble mixed with a few larger wall-facing stones, again showing the existence and the destruction of a stone rampart behind it of approximately similar age. Unfortunately, no datable relics were found in any of these earlier ditches or in connection with the earlier wall-facings.

To sum up the work done in 1914. In addition to the finding of many relics and the gaining of further information about the occupation of the stronghold in the fourth century A.D., many important fresh discoveries have been made, which give glimpses of the structure of a previously destroyed hill-fort or hill-forts. To follow up these discoveries under huge masses of difficult and shifting stony *débris*, and to link up the facts already obtained to one another, much labour will have to be incurred. But the investigators are looking forward to continuing the work after the cessation of the war. Detailed records of excavations made in 1914 have been preserved, as before, in the form of plans, sections, and photographs.

II.

Excavations at Wroxeter, on the Site of the Roman town of Uriconium, 1912-14. *By* J. P. Bushe-Fox, *F.S.A.*

The Society of Antiquaries, in conjunction with the Shropshire Archæological Society, carried on extensive excavations at Wroxeter during the years 1912, 1913, and 1914.

Wroxeter, the ancient Viroconium or Uriconium, is situated on the east bank of the Severn, between five and six miles south-east of Shrewsbury. The lines of its walls can still be traced enclosing an area of about 170 acres, and the town must have been an important centre in Roman-Britain, as it stood at the junction of two of the main roads, viz., the Watling Street from London and the south-east and the road from the legionary fortress of Caerleon in South Wales. There were also other roads running from it into Wales and to Chester. The town is referred to by the Ravenna geographer as Viroconium Cornoviorum, and was probably the chief town of that tribe which inhabited a district including both Wroxeter and Chester.

That the site was inhabited soon after the invasion under Claudius in 43 A.D. is evident. Coins and other objects of pre-Flavian date have been met with in some quantities, and there are tombstones of soldiers of the XIV. legion from the cemetery. This legion came over with Claudius and left Britain for good in the year 70 A.D. Wroxeter, situated on the edge of the Welsh hills and protected from attack on that side by the River Severn, would have formed an admirable base for operations against the turbulent tribes of Wales, and it is more than likely that it was used as such in the campaigns undertaken by Ostorius Scapula in 50 A.D. and by Suetonius Paulinus in 60 A.D.

The Welsh tribes were finally subdued before the end of the reign of Vespasian, and, the country becoming more settled, Wroxeter appears to have ceased to be a military centre and to have grown into a large and prosperous town. It is in this period, namely, the last quarter of the first century A.D., that the occupation began on the part of the site recently excavated. Very little of the earlier buildings remained, as they all appear to have been built of wood and wattle-and-daub. In the second century more substantial houses were erected, and in the course of the excavations the following buildings were uncovered. In 1912 four long shops with rooms at the back and open fronts with porticos on the street. In 1913 a temple which must have been of some architectural pretensions and contained life-size statues, of which several fragments were discovered. In 1914 a large dwelling-house consisting of a number of rooms with a large portico on the street and a small bath-house at the south side. The porticos of all these buildings formed a continuous colonnade by the side of the street. At the back of the large dwelling-house another structure was discovered. Unfortunately, it could not be entirely explored, as its west part was beyond the reserved area. It consisted of two parallel walls, 13 feet apart, which enclosed an oblong space with rounded corners, 144 feet wide and 188 feet long, to the furthest point excavated. No other building of this form appears to have been found elsewhere, and it is difficult to say for what purpose it was used, especially as part of it is still unexcavated. It is possible, however, that it may have been a place of amusement for games, bull-baiting, &c., and that the two parallel walls held tiers of wooden seats.

The buildings that faced the street had been altered and rebuilt several times, the mixed soil being as deep as 8 feet to 10 feet in places, making the work of excavation very slow and laborious. For instance, in 1914 there was evidence of at least four different periods of buildings on the same site. In the early period there were wood and wattle-and-daub houses. Over the remains of these in the first half of the second century three long buildings with open fronts or porticos similar to those found in 1912 were erected. About the middle of the second century these three buildings were incorporated in one large house with corridors, two courtyards, many rooms, some with mosaic floors, and others fitted with hypocausts. A bath-house with cold baths and hot rooms was situated at the south-west corner. At a later period this dwelling was considerably altered, several of the rooms were swept away, and the central part of the building turned into one large courtyard with corridors on three sides. Two new hypocausts were inserted and extra rooms and a long corridor or verandah built at the back. Water was supplied to the houses by a water-main at the side of the road. By shutting sluice-gates it was possible to divert the water into side-channels, which ran through the houses flushing their drains, and discharged at the back into the river. Eleven wells were found during the excavations, varying from 10 feet to 12 feet deep and stone-lined.

A number of crucibles and some unfinished bronze castings, &c., have been met with, showing that metal-working was carried on on the site. There was also evidence of other industrial processes, such as enamelling and working in bone. A very large number of small objects have been discovered during the excavations, such as cameos, engraved gems—some still set in finger-rings—many brooches of different metals, enamelled ornaments, and a quantity of interesting articles in different metals, bone, glass, &c.

The great quantity of pottery found may be judged by the fact that upwards of 900 potters' stamps on Samian ware have been recorded. The coins number between 1,200 and 1,300, among them being a few British varieties. No coins later than the end of the fourth century have as yet been met with, and the town does not appear to have been inhabited after that date. What was the cause of its destruction or desertion is as yet uncertain, but it is hoped that future excavations will solve the problem.

Detailed accounts of the excavations are printed in Reports of the Research Committee of the Society of Antiquaries of London, Nos. 1, 2, and 4.

THE Wilts Archæological Society are appealing for contributions towards the preservation from collapse of the great fourteenth-century barn at Bradford which has recently been made over to them by the owner, Sir C. P. Hobhouse. Mr. Harold Brakspear, F.S.A., estimates that £775 ought to be spent on the structure, but the committee propose to carry out the most pressing work only at a cost of about £200, of which a half remains to be collected.

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NEWCHURCH CHURCH, ISLE OF WIGHT.

In connection with the seventy-second Congress of the British Archæological Society, the Rev. F. J. Bamford, vicar of the parish, gave an account of this church, which he thus described:—

The church of All Saints was built in 1087 by William FitzOsborne, a cousin of William Rufus, as an atonement for the ravages he committed in the New Forest, and was conferred by him on his great Abbey of Lyra in Normandy. When the alien priories were suppressed in the reign of Henry V., in 1414, Newchurch was granted to the Abbey of Beaulieu in Hampshire. After the suppression of the monasteries (29th Henry VIII.) the Abbey had to surrender Newchurch, with its other endowments, to the King, who granted it to his new Bishopric of Bristol, and in 1536, when Henry's foundation was merged in Gloucester, the great tithes became the property of that See, from which they passed to the Ecclesiastical Commissioners, in whose possession they now are.

The present church consists of chancel, nave, aisles, north and south transepts, and a wooden tower over the south porch, and has been much pulled about and altered since its foundation. Probably the original structure was a small building, merely a nave and chancel. The oldest surviving portion is the north wall of the chancel, which dates back to the beginning of the twelfth century. The blunt lancet windows were intended to be closed by shutters, as there is no groove for the glass, and they remain practically untouched. Early in the next century—the thirteenth—the nave was pulled down, probably as being too small, and rebuilt with transepts and north and south aisles, most likely under the direction of monks from the Abbey of Lyra. The opening over the chancel arch, a wide splayed lancet for hanging the sanctus bell, is ascribed to this period. The next century—the fourteenth—left but little mark on the church, except in the addition of the south porch and the opening of the rose window in the gable of the west wall. Early in the next century—the fifteenth—about 1414, the monks from Beaulieu took possession of the parish, and Mr. Stone considers that they practically rebuilt the nave, widening it by about seven inches, but copying all the details of the work they pulled down (or possibly again using the older work). He also considers that they built a tower over the south porch somewhat resembling the neighbouring tower of Godshill, but of this, if it ever existed, only the stump remains. The most interesting mark these monkish masons left on the building was the erection of a rood-loft, the staircase leading to it being cut through the southern pier. There are the two bottom steps still in position, and the traces of the winding stairs are still evident. Then in the reign of Henry VIII., when the English Church was passing through the crisis of the Reformation, the people of Newchurch were quietly rebuilding their chancel walls on the east and south, but luckily they did not require to touch the north wall, the oldest portion of the church; and at the same time the south transept was altered. In the next century, in October 1688, Sir Robert Dillington obtained a faculty to build a vault in a certain vacant space of the north aisle, and it was probably then that the north transept was reconstructed as a mortuary chapel for the Knighton family. Still later, the south transept was lengthened some 10 feet or 12 feet, as may be seen from the difference of the masonry, to form the burial place of the Boclands and Bissetts, who succeeded the Dillingtons, the date of this alteration being given in the figures carved over the south window, 1725. Shortly before this the curious picturesque wooden tower was constructed, the only subsequent change being the building up of the north door, probably in accordance with the superstitious belief that all evil comes from the north. In 1883, the church, having fallen into very bad repair, was restored (by the then Vicar, Mr. Dicker) at an expense of about £1,500, the old pews were removed (and the present oak seats introduced), the walls overhauled, the plaster ceiling was beaten down, the open timbers of the roof uncovered and where necessary replaced, and the floor entirely relaid. In 1897 the timber of the curious wooden tower was renewed, most of it having been riddled by the larvæ of the great saw-fly, and the bells being in great danger of falling. The most beautiful feature of the church from an architectural point of view is, I consider, the fine moulding of the intersecting arches of the chancel and transepts, which, seen from the west end, gives singular depth and is strikingly effective.

Now, glancing at the church furniture and other possessions of the church, our attention is first drawn to the lectern, which is a magnificent example of wood-carving, representing the pelican (in his piety feeding his young with the blood of his own breast). Epiphanius of Cyprus thus in his Physiologus, a favourite book of mediæval times, relates the legend of the pelican: "Beyond all birds the pelican is fond of his young. The female sits on the nest guarding the offspring and cherishes and caresses them and wounds them with loving and pierces their sides and they die. After three days the male pelican comes and finds them dead and very much his heart is pained. Driven by grief he smites his own side, and as he stands over the wounds of the dead young ones the blood trickles down and thus are they made alive again." The pelican thus became a favourite emblem of Christ (and the Blessed Sacrament), as is shown by the old line, "Signat avis Christum, qui sanguine pascit alumnos." The present carving was originally in the church of Frome in Somersetshire, known to fame because of the great lawsuit brought against the Rev. W. J. E. Bennett in 1870-72 for his teaching on the Eucharist. It formed a portion of a pulpit canopy, was turned out at some restoration of Frome Church, and was rescued from desecration by Mr. Dicker, who presented it to the church. It is probably about 200 years old, and the plumage of the wings shows great vigour of touch in the unknown carver. My friend, Mr. R. Nutt, of Ryde, a distinguished ornithologist, is always distressed that the feet of the bird are not webbed, and argues that it therefore cannot represent a pelican, but heraldic and emblematic creatures are not conspicuous for their close adherence to cold reality.

The pulpit is the upper portion of the old cut-down "three-decker," and previous to the 1883 restoration it stood on the north side of the chancel arch, but was then moved and mounted on its stone base. It is Jacobean, and was most likely the gift of one of the Dillingtons. The canopy is a fine example of Jacobean (or Caroline) carving and inlay work. The figure of the angel who surmounts it holds a Bible in his hands open at the words, "Blessed are they that hear the word of God and keep it." This figure is still spoken of by several of the old people as the "mommet" (a curious survival of an Elizabethan word signifying a carved idol or image). The font is poor, and of little interest. Formerly there was a west gallery, where the singers and musicians, with their fiddles, flutes, bass viols, and serpents, were stationed, but these were superseded by a barrel-organ, which still remains in the vestry. There also you will find a copy of the "Vinegar" Bible, so called from the misprint in the heading of St. Luke xx., "The Parable of the Vineyard." This Bible was considered, when published in 1716 at the Oxford University Press by John Baskett, to be a remarkably fine specimen of typography, but not only was there this misprint, but the plate of King David playing the harp, at the end of the Psalms, is turned upside-down. The Royal Arms over the south door of the church are also worthy of notice; they were painted in 1700, in the reign of King William, after the death of his consort Mary, and the artist, in a burst of exuberant loyalty, has endeavoured to give the British Lion the features of the Prince of Orange. In the vestry stood in days gone by a gun for the defence of Sandown Bay in case of an enemy landing there, but it is said to have been taken to Nunwell for a review, and no one appears to have taken the trouble to return it. The table on the south side of the sanctuary, now used as a credence table, is the old altar-table, and was probably introduced into the church during the primacy of Archbishop Laud.

The transepts were in all probability built as chantries. The one on the north, which should be called the De Morville chantry, was founded by John De Morville, who died in the fortieth year of Henry III. It became the family burial-place of the Dillingtons. These were in the first place a Somersetshire family, and came into the island in 1563, in which year Anthony Dillington bought Knighton of the Gilberts, the representatives of the ancient family of Gorges. His son, Sir Robert, is the first one of whom we have any memorial. A coat of arms was granted to Robert Dillington, of Knighton Gorges, by William Camden, Clarenceux, January 11, 1599—gules a lion salient or. He opposed the high-handed proceedings of Sir George Carey about the time of the sailing of the Armada (1588), and in consequence of his complaint was summoned before the Council and committed to the Fleet Prison on a charge of allying with Papists against the Government, shouting

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"Liberty," and declaring that if he could not get redress in any other way he would seek it at the point of his poniard. After a spirited remonstrance in his favour, signed by most of the gentlemen in the island, he was released. He was thought very highly of by Sir John Oglander, who writes: "He was as handsome, well-complexioned, as you could wish; he was a good, not great, traveller and scholar, he had his Latin, French, Spanish, and Italian tongue; he was very honest, stout, and valiant, but above all his sweet, noble, merry carriage, as full of conceypts without offence, very liberal to his friends. All men loved his company, great Lordes and others. He died in London, and is buried going up to the chancel in St. Clement's Church. He left his estate, although not great yet out of debt, to one Robert Dillington, his brother Tristram's son, who inherited with his lands not one of his uncle's conditions. Mr. Robert Dillington was the son of one Goddarde's daughter, a merchant in Hampton, after whose base and misconble condition he much took, insomuch as his uncle, Sir Robert could hardly endure him. His father a brave gentleman died when he was young after his uncle had left him the land. Marrying with a woman like himself (he married first Mabel, daughter of Sir Humphrey Foster, Knight of Berkshire, and second Catherine, sister of Lord Gorges), they grew so misconbly base, as in one instance for all when any came to his house with horses he hath been often found in the rack and manger taking away the hay, but by these thrifty courses from one of the meanest in the Island he grew so rich as he purchased Motson of Mr. Cheeke and divers other things, which he kept all in his hands so fearful that any should gain by him and as his living was contemptible till he attained forty-four years of age, wherein he got much wealth and sent them one unto him that had a Baronetcy to sell (1628, one of the forty baronetships that Buckingham, before embarking for Rochelle, distributed among his chief followers in lieu of money, which titles they sold to the best bidder—the average price was £150 or £200). The cheapness of the price drew him on to deal so that now he that was of late inferior to all is now inferior to none, and there is good hope that with the new honour he will become more gentle. Base, proud, and misconble, not caring for any but those by whom he may gain, in all his actions he hath relation to his own ends, doing a courtesy no further than may stand with his own profit, one that would seem wise, yet a fool in all things, gains excepted. (Anthony Dillington, ye son of Robert, of the age of seventeen years, died at Oxford in May 1627)." He was succeeded by Sir Robert, who died in 1687, and to whose memory and that of his wife, Jane Freke, is an elaborate memorial in the vestry; another Sir Robert died in 1689, Sir John in 1705, and the title died out with Sir Tristram, about whom the following story is related: Sir Tristram lost within a fortnight from a malignant fever his wife, Joan, to whom he was greatly attached, and four children. This so unhinged his mind that he drowned himself in the piece of water adjoining the house. Luckily for the family, his body was found by an old butler, who, knowing that the property of suicides escheated to the Crown, went to the stable and turned loose his master's horse first breaking the saddle girth. Then, when the horse returned with displaced saddle, he sent off all the serving men to search the roads and in their absence brought home the body, and the death was thus made out to be accidental. The faithful butler was pensioned off with a small farm on the way to Brading, and Dillingtons remained at Knighton for a little longer until 1749, when the property passed to General Maurice Bocland, whose tablet in the south transept relates that he was twice Member for Yarmouth and once for Lymington. He died in 1765, and the property passed to the Bissetts. Dr. Alexander Bissett's chief claim to fame is that he was the father of a young man who appears in one of Gilray's wickedest caricatures, and with the Bissetts the great house of Knighton Gorges passed out of existence, the local story being that Maurice George Bissett quarrelled with his heir-at-law and swore he should never set foot in the house. The heir, thinking of the entail, chuckled, but the old man was the cleverer, as, when he felt himself failing, he gave orders for the house to be demolished, and he timed it well, for when they got to the cellars he died. The sundial, which used to stand on the bowling-green at Knighton, was given to the parish in 1815, and stands in the churchyard. It is a fine specimen of engraved dials; it was made by John Marke in 1678, and bears the arms of the Dillingtons quartered with those of Toombe, Wales, and Blunts. The house is described by Legh Richmond in "The Dairyman's Daughter" thus: "The house was a large and venerable mansion. It stood in a beautiful valley at the foot of a high hill. It was enbowered in fine woods. The manor-house had evidently descended through a long line of ancestry from a distant period of time. The Gothic character of its original architecture was still preserved in the latticed windows, adorned with carved divisions and pillars and stonework. One end of the house was entirely clothed with the thick foliage of an immense ivy, which climbed beyond customary limits and embraced a lofty chimney up to its very summit."

The plate of Newchurch consists of chalice and cover, with pricked date 1620, a fine specimen of the period resembling the one at Shorwell, a plate given by Mrs. Hannah Dillington in 1737, and a flagon of the same date with the neat inscription, "Deo et Altari sacrum." It was far more magnificent before the great pillage in the time of Edward VI., when we read that the parish church was robbed of a cross, chalice, censer, paxe, and a pair of crewats, 140 oz. of silver, which were sold for £30, and a suite of vestments for £6 2*s*. The bells are six in number, one dated Anno 1589, another inscribed "Anthony Bond made me 1626"; the other four were the work of Messrs. Mears & Son, of London, in 1810. There is a local tradition that the clock at Godshill was given to that parish by the people of Newchurch in exchange for one of their bells. The present registers date from 1690, but an older register beginning at 1582 seems to have been lost in comparatively recent times. Among some of the more interesting entries are: "Oct. 13th, 1740. Dr. Benson, B. of Gloucester, came to the Island and confirmed at Newport 716 persons, and on the day after, the 14th, he confirmed at the Parish Church of Newchurch 551 persons, of whom there were 300 who lived in this parish, and on the next day, the 15th, he confirmed at Brixton 413 persons, the whole number that were confirmed in the Island being 1,680. Mem. that on ffriday night and Saturday, ye 26th and 27th days of Nov. an. Dom. 1703, there happened a very tempestuous wind which blew down a great many trees and houses. Nov. 20th, 1705. John, Smith and Thomas, at one birth three sons of William March, all lived to be baptised." We have a reminiscence of the smuggling days in the entry "1773, May 28th, Buried Robert Cotten, who unfortunately lost his life at Bembridge Cliff." Then follows the convivial memory "1775, April 2nd, buried William Cook, who died by drinking drams at Farmer John White's wedding." The great French war left its mark on the neighbourhood, as may be gathered from many notices like "1807, Oct. 21st, John Powell, mate of the Duckworth, West Indiaman, and William Sackling, apprentice of the same, both killed in an action with a French privateer off Portland on Sunday, Oct. 18th," or "1809, July 30, Lieut. Alexander, of the 79th Regt. He fell overboard from the Weymouth Store-ship at Spithead and was drowned."

The churchwardens' accounts begin in 1686, and many curious sidelights on the life of the time may be gathered from their pages. I venture to make a few extracts. Almost the first entry relates to May 23, 1686, to the amount of money "gathered for ye Relief of ye French Protestants by ye King's letters patent £2 15*s*. 11*d*. (the collection for the Huguenots after the revocation of the Edict of Nantes). 1714, paid to William Calloway for ringing beer when ye King George came in England and when he was crowned, 15*s*. 1716, paid for powder the Rejoycing Day, 2*s*. 2*d*. Paid for beer the Thanksgiving Day, £1 2*s*. 6*d*." In this year there seems to have been a little revolution in the parish, as it was agreed by the parishioners that "the churchwardens shall be allowed but 5*s*. a piece towards their charges at visitations, and 2*s*. 6*d*. for the minister, and 1*s*. for the clerk, and that they shall not be allowed to give anything to travellers." Their action seems to have been justified, as Thomas Pope, churchwarden, spent £1 15*s*. 9*d*. on his dinner in 1715, and his fellow-warden, Thomas Westmore, £1 5*s*. 2*d*. The injunction was not carried out, as in 1720 the wardens gave three prisoners that came from Turkey 1*s*. 6*d*., and to seamen that were cast away 1*s*. In 1719 they paid for consecrating Ride Chapple 5*s*., and in 1720 paid for a barrel of beer for roaring, 15*s*. In 1727 "paid for a quarter of ell of holland for the surplos, 9*d*. Paid John Cantel for a rammer for ye gunne, 1*s*. 6*d*. Paid for sixpound of powder for the King's Coronation Day, 7*s*. Paid for carting 100 of faggots for the bonfire, 5*s*. Paid for making of them, 1*s*. 3*d*., and in 1730 spent in going a-processioning, 5*s*."

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But we must stop. In conclusion I must confess that I regretfully find that every authority—from Albin, in 1795, who says of the church "Little can be said of it, except that it is old," to the guide-book of yesterday, which re-echoes "The church is old, but not of much interest"—speaks of Newchurch with unmitigated disparagement or in contemptuous condescension, but I trust that you will carry away pleasant memories of your visit to this very Nazareth of the Island, and find even in despised Newchurch something of the record of the sorrows and rejoicings of thirty generations, some influences, aspirations, and consolations of Christian worship.

THE GREEK ELEMENT IN ASIA MINOR.*

THE Greek element in Asia Minor has existed under the domination of the Turks ever since the arrival first of the Seljouks and then of the Ottomans. It was, however, not annihilated by the conquerors, and the regions where it survived in greatest numbers are marked also by the preservation of the Greek language. Thus, although in general the Greek Christians in Asia Minor talk Turkish, and whatever Greek is used is due to the influence of the schools, in some parts of Cappadocia and Pontus Greek is still the vernacular of the Christian population. In the western parts of Asia the destruction of the Greeks was more complete, and therefore there the language has only survived in a few scattered villages. This local Greek is of great importance from many points of view. Its mixture with Turkish is of great linguistic interest; many features in its grammar make it plain that it rests upon a form of Hellenistic Greek different from that which has produced the ordinary modern Greek, and it is therefore of use in reconstructing the features of the Hellenistic language; and lastly its vocabulary reflects in a remarkable way the history of the country. Thus the Italian loanwords which are so common in ordinary Greek are very rare in Asia, but there is no lack of Latin words. The reason for this is that between the late Roman and early Byzantine period, when the Latin words were taken into Greek, and the period following the Fourth Crusade, which gave the Italian words to the language, there occurred the first irruptions of the Turks, which separated the Greeks of Asia from their European brethren, and their language was in this way shielded from the influence of Italian. In the same way, of the Slavonic words found in Modern Greek very few are in use in Asia; the only considerable Slavonic element is formed by the Russian words which modern conditions are bringing into the dialect of Pontus. In Cappadocia there is also an Armenian element in the vocabulary. The condition of these Greek communities has grown sensibly worse since the New Turk *régime*; in particular the introduction of conscription is causing wholesale emigration, especially from Pontus into Russia. It seems, too, that the aim of the Turks is now the total destruction of the Greek population, and the outlook is dark indeed. It would indeed be terrible if the time which has seen the increase of the territory of free Greece were also to see the end of those survivors of the old Byzantine rule in Asia Minor.

EXAMINATIONS IN ART, 1916.

THE Board of Education have published the Regulations for the Examinations in Art for next year.

These Regulations are, subject to the alterations described below, substantially identical with those issued by the Board for the Examinations in Art, 1915. The Board, however, desire to give notice that it may conceivably prove necessary at a later date to suspend the examinations for the year, in view of the condition of public affairs. Should this prove to be the case, they will endeavour to give as much notice of the change as possible.

It is important that candidates desiring to obtain the new Teaching Certificate in Art should read, together with paragraph 7 of these Regulations, Rules 109, where the full requirements for that certificate are set out.

As was announced in the corresponding Regulations which were issued in 1913 and 1914, the Board will from 1916 onwards cease to take into account successes obtained by candidates under the former scheme of Art Examinations. The Board have taken these into account during the three years 1913 to 1915, in order to alleviate as far as possible any inconvenience which candidates might experience from the substitution of a new scheme of Art Examinations for the scheme previously in existence; but it is considered that the time has now come when candidates taking the new series of Art Examinations must be judged entirely on the merit of the work done by them at those examinations.

Last year it was for the first time made possible for candidates to take the Industrial Design Examination in two parts, an arrangement which it was hoped would go far to remove any difficulties which industrial students were in some cases said to have found in preparing and entering for the examination. It is expected that this examination will be found to meet the needs of students engaged in a large number of crafts; and every endeavour will be made to adapt it to the peculiar and diverse requirements of this wide class of students.

The Board repeat, for the information of managers and head masters, that while they are of opinion that it is desirable for schools of art to have an available supply of full-size casts, both for the purpose of practical study by the students, and also for the special purpose of preparation for a test in memory drawing, they will not require any school to have full-size casts of all the statues mentioned as those which candidates for the Board's examination in drawing, 1916, will be required to study in preparation for a memory test. Moreover, in view of the difficulty which, it is understood, has been experienced in some cases in obtaining suitable casts of the Lorenzo de' Medici and of the David, the Board have selected alternative casts which may be substituted for these, at the option of candidates, in working the test in drawing from memory. For the same reason, the inclusion of the Hypnos in the list of casts for this test is deferred.

* A note submitted to the Manchester meeting of the British Association for the Advancement of Science. By R. M. Dawkins, M.A.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Government Land Valuation.

SIR,—As divers statements, varying in many essential particulars, as to the completion of the valuation have recently appeared in the Press, may I be allowed to state briefly what I understand to be the actual facts?

In towns and suburbs a large percentage of the provisional valuations have been made and served, but it does not follow that these valuations have been finally settled. As a fact, the Chancellor of the Exchequer, on August 17, 1914, notified the Land Union that in the case of all provisional valuations served within sixty days prior to mobilisation, or served after that date, the period within which objections may be lodged is extended indefinitely until further notice.

Apart from this, thousands of the valuations served prior to and unaffected by this concession are under objection, and likely to remain so pending final decisions of the Courts on questions of law.

With regard to agricultural land (the greater area of the country), the valuation in the present state of the law must remain at a standstill until fresh legislation is introduced.

In these circumstances, the release of the bulk of the temporary staff of the valuation department for enlistment or national work is a natural corollary, and one to which the Land Union attaches no political significance.—I am, &c.,

C. H. KENDERDINE, Secretary.

St. Stephen's House, Westminster, London, S.W.:
September 10, 1915.

An Income Tax Warning.

SIR,—May I again remind your readers that claims to be assessed at the lower rates of income tax in respect of "earned income" should be sent in before the 30th day of this month? Failure to comply with this regulation will result in an assessment at the full rate of at least 2*s.* 6*d.* in the £. In order that the relief may be claimed page three of the return form should be completed.

In cases where the exact income which will accrue between April 6, 1915, and April 5, 1916, is not known, or when it is possible that any earned income will be received between September 30 and April 5, Form No. 38H should be completed, provisionally claiming the benefit of the earned

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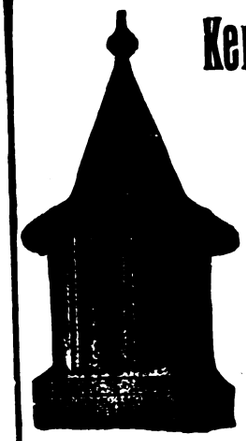
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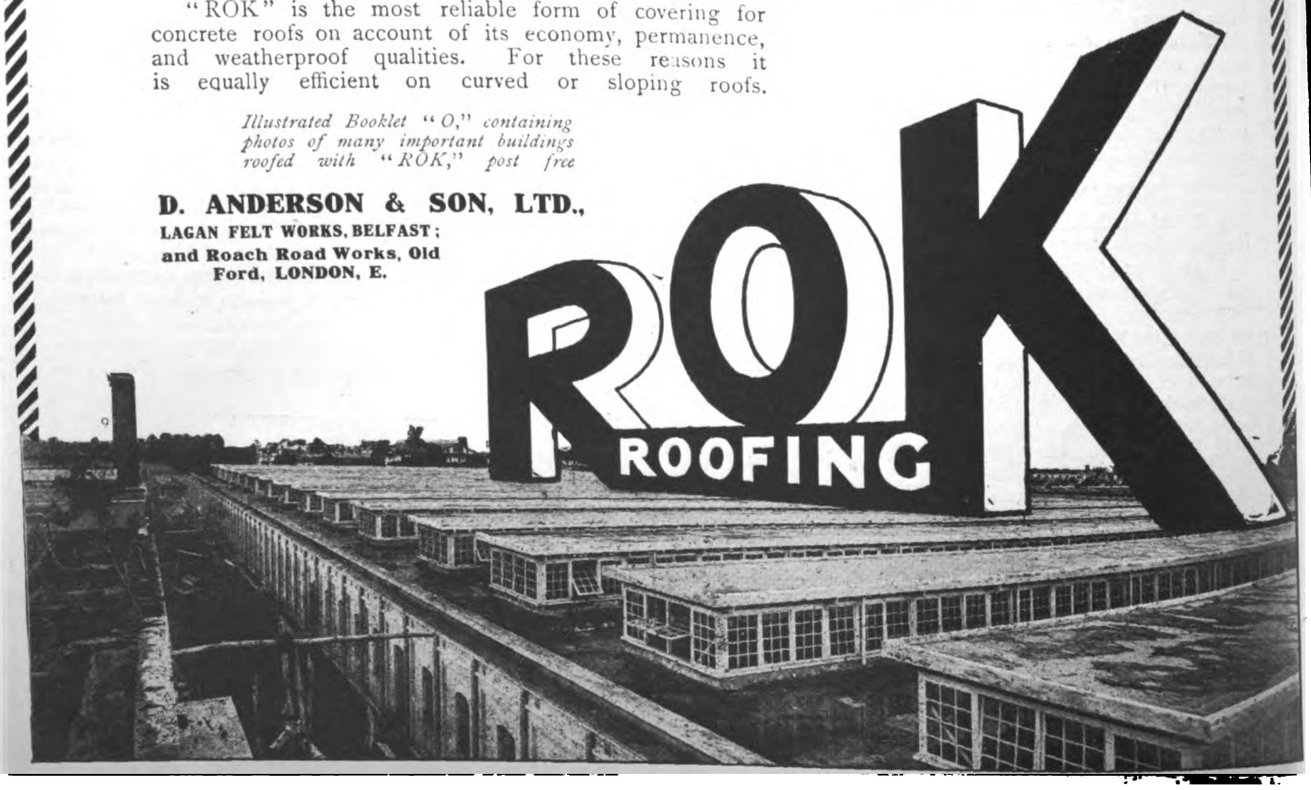
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WILFRED T. FRY,
Secretary,
The Income Tax Reclamation Association, Ltd.
62-63 Queen Street, London, E.C.,
September 15, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

High Wycombe.—Bungalow, for Mr. T. Beldon (Marlow).
Pair of houses, for Mr. Hunt (Stokenchurch).
Stables, for Mr. E. Anderson (Saunderton).

DEVON.

Ivybridge.—Premises, for Lloyds Bank, Ltd.

DURHAM.

Blackhall Colliery.—Proposed P.M. Church.
Brandon.—Proposed isolation hospital.
Consett.—House, Medomsley Road, for Mr. W. R. Redshaw.
West Hartlepool.—No. 8 Victoria Road: alterations, for Mr. G. J. Abbey.
House, Alma Street: alteration, for Miss Rooke.
Shop and house, Milton and Murray Streets: alterations, for Mr. J. Lumley.
Warehouse, Park Road: addition, for Mr. J. F. Thompson.
Works, Mainsforth Terrace South: addition, for Seaton Carew Iron Company, Ltd.

ESSEX.

Braintree.—Chapel Hill Foundry: additions.

HAMPSHIRE.

Portsmouth.—Proposed St. Patrick's Mission Church, Eastney.

KENT.

Ashford.—Cottage Hospital: proposed extension.
Canterbury.—The "Coach and Horses" p.h.: alterations. Mr. F. H. Doré, architect, 25 Watling Street.
Dartford.—The "Duke of Northumberland" p.h., Northumberland Heath: alterations and improvements.

LANCASHIRE.

Blackburn.—Ten houses, Livesey Branch Road. Mr. H. Duckworth, builder, St. Aldous Avenue, Mill Hill.
Bolton.—Motor garage, St. Michael's Avenue, for Mr. W. A. Hindley.
Bootle.—Marsh Lane Wesleyan Church: proposed addition (£700).
Bury.—Proposed St. James' Church, Woolfold.
Haslingden.—Palace Cinema: alterations. Mr. W. Tattersall, architect.
Manchester.—Nos. 646-8 Rochdale Road: alterations. Messrs. J. Bland & Sons, Ltd., builders, Blackfriars Road, Salford.
Ancoats Hospital: addition. Mr. W. C. Hardisty, F.R.I.B.A., architect, 5 John Dalton Street.
Factory and shops, Bury New Road, Cheetham. Messrs. Thorpe & Collier, architects, 66 Deansgate.
Picture Hall, 66 Oxford Road. Messrs. T. Cook & Sons, architects, Hodson's Court, Corporation Street.
Warehouse, Shudehill. Messrs. T. Horsefield & Son, architects, 33 Brazennose Street.
Works, Derby Street, Cheetham. Mr. J. Sunlight, architect, 4 St. Ann's Square.

NORTHAMPTONSHIRE.

Potterspury.—Congregational Church: hall.

SHROPSHIRE.

Madeley.—Houses, Aqueduct: additions, for Mr. Foster.

SOMERSET.

Paulton.—Cottages: alterations; also additions to the "Dove" Inn, for the Welton Breweries Company, Ltd.

STAFFORDSHIRE.

Handsworth.—Baptist Church, corner of Alfred and Soho Roads.

SUSSEX.

Eastbourne.—"Warren Hill," Beachy Head Road: additions, for Mr. A. M. Wilkinson.
Baltic Lodge, Dittons Road: additions, for Mrs. A. Douglas.
No. 8 Mountney Road: additions, for Mr. F. J. Wright.

WARWICKSHIRE.

Coventry.—Two houses, Lythall's Lane, Foleshill, for Mr. F. Over.
House, Hall Green Road, Foleshill, for Mr. J. Preedy.
Curdworth and Sutton Coldfield.—Explosives storage factory.

WORCESTERSHIRE.

Droitwich.—St. Andrew's Brine Baths: addition.
Malvern Link.—Proposed church.
Stourbridge.—Receiving home, Norton, for B.G. Mr. H. E. Folkes, architect, Waterloo Buildings.

YORKSHIRE.

Bilton.—Congregational Church. Mr. A. A. Gibson, architect, 5 Prospect Crescent, Harrogate.
Castleford.—The "Gardener's Arms" p.h., Church Street: reconstruction, for the Leeds and Wakefield Breweries, Ltd.
Warehouse, Armitage Street, for Mr. Newbould.
Dewsbury.—Houses, South Street, Savile Town, for Mr. P. Ellis.
Motor garage, Fairfield Terrace, for Mr. R. Armstrong.
Halifax.—St. Mark's Church, Siddal: vicarage.
Mytholmroyd.—Proposed station, for L. and Y.R. Co.
Pontefract.—Motor garage, for Messrs. Sainter & Sons.
Skipton.—Hospital: addition. Mr. J. Hartley, architect, Swadford Chambers.

WALES.

Dolgelly, Glyndyfrdwy, and Llanelltyd.—Proposed Council schools (£8,500).
Ruthin.—Bungalow, near the Cambrian Works, for Messrs. Riley.
No. 2 Clwyd Street: alterations, for Mrs. Lewis Jones.

SCOTLAND.

Cardonald.—Two double villas, Wedderlea Drive, for Mr. J. Young.
Two double villas, Edward Gardens, for Messrs. Taylor & Wilson (of Newlands).
Clydebank.—Premises: addition (£3,000), for the Yoker Distillery Company, Ltd.
Dundee.—Houses, Peter's Court: alterations, for Messrs. Esplin & Clark.
Cinema theatre, Gray Street, for Broughty Picture House, Ltd.
Theatre, Victoria Road: alterations, for Mr. R. C. Buchanan.
Dunfermline.—Hippodrome, corner of St. Margaret Street and Abbey Park Place, for Mr. H. Hare (£20,000).
Glasgow.—Buildings, Minto Avenue, Cathcart, for Messrs. G. & J. Weir, Ltd.; also
Stores, Newlands Road.
Goods Station, Duke Street: offices, for N.B.R. Company.

IRELAND.

Ballygar (Co. Roscommon).—Newbridge Church: restoration. Mr. J. V. Brennan, architect, Belfast Bank Chambers, Belfast.
Dublin.—No. 14 Wicklow Street: rebuilding. Mr. P. J. Munden, architect, 5 Trinity Street. Mr. T. Mackey, contractor, 48 Lower Camden Street.
Enniscorthy.—District Asylum. Mr. C. A. Owen, F.R.I.B.A., F.R.I.A.I., architect, 29 Molesworth Street, Dublin.
Kells.—Bakery, &c. Mr. M. Grace (of Oldcastle), architect.
Sligo.—Convent. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street, Dublin.

MAJOR H. PHILLIPS FLETCHER, F.R.I.B.A., F.S.I. (Middlesex Hussars), has been awarded the "Croix de Guerre" upon the recommendation of Admiral Dartige Fournet, of the French Mediterranean Squadron. His name has also appeared in the "Ordres du Jour," the French equivalent of being "mentioned in despatches." Major Fletcher has been specially lent to the "Aviation Maritime" as military observer, and for the last four months has been making aerial reconnaissances of Turkish positions from the coast, and dropping bombs on munition factories in Asia Minor, Syria, and Arabia.

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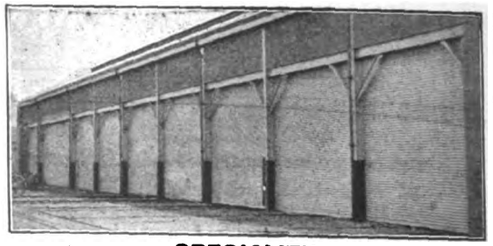
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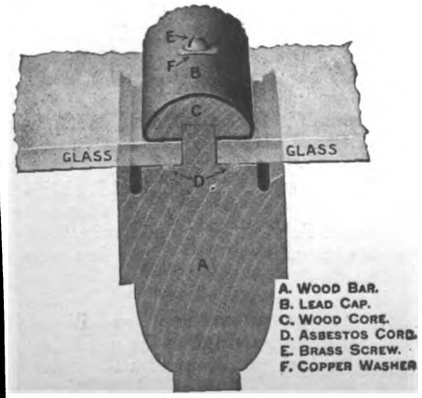


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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, October 4.

Society of Engineers: Paper entitled "Law and Engineering," by Mr. S. G. Turner, A.M.I.C.E., Barrister-at-Law, at Surveyors' Institution, at 7.30 P.M.

CONDITIONS OF CONTRACT.

ONE would have thought that the R.I.B.A. conditions of contract would by now have found general acceptance throughout the country, representing as they do a very fair compromise between what some contractors would like to have and what some employers, or their solicitors, think should be binding upon any builder who takes a contract. It is true that there are some architects, even some members of the Royal Institute, who are either wedded to the form used by their revered masters in the days of their pupilage or look upon the R.I.B.A. form as unduly cumbrous and verbose, but on the whole most of us regard it as a very fair give-and-take document. Not that we think it perfect by any means, nor like the law of the Medes and Persians, entitled to stand unchanged for ever. New developments in building matters and the light of experience will keep any agreed form in a state of flux, and so we may expect before long a revised R.I.B.A. form. It is a peculiarity of English law in general that it is not in the last resort founded on statutes alone, but on the opinion that certain learned judges, who usually, in groups, differ more or less amongst themselves, form of what a certain statute means or ought to mean. So with any model conditions of contract that may be agreed upon between representative bodies of architects and representative bodies of builders, the effect of such conditions in actual practice cannot be precisely predicted, and we have to wait and see what the judges will make of them. Having waited and seen, it is as likely as not that the original intentions of the framers are not fulfilled and revision becomes necessary.

It appears, however, from the official quarterly publication of the National Federation of Building Trades Employers of Great Britain and Ireland that public authorities are very far at present from the use of satisfactory and approved standard forms of contract and conditions for their building and constructional engineering works, nor do they always observe customary methods in obtaining the tenders for such works.

Even such public authorities as H.M. Office of Works, the Metropolitan Water Board, and the Metropolitan Asylums Board are said to be using forms that builders naturally consider unsatisfactory as possessing no arbitration clause and being in other respects more onerous than the R.I.B.A. form. The borough of Woolwich, however, is held up as a shining light, inasmuch as all matters of dispute arising out of the contract are referable to arbitration in their form of contract.

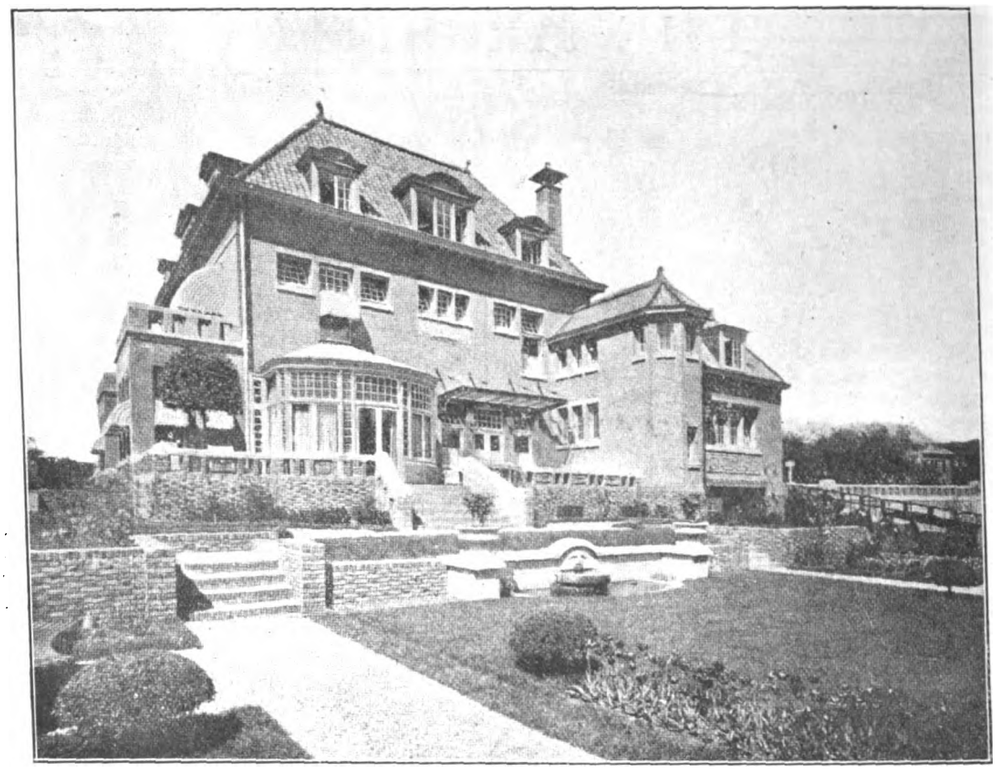
We cannot expect that architects generally would consent to such a clause being universally adopted, nor would it be an advantage to the building trade employers if it were so adopted. The result would be that no architect who valued his peace of mind would consent to a builder unknown and untried by himself being employed under his supervision, for he would be exposed to the danger of continual annoyance by any contractor or foreman who should take advantage of the opportunity of threatening arbitration whenever the architect's opinion or judgment might clash with his own. There are black sheep amongst contractors and foremen who would use such universal reference to arbitration to squeeze extra profit out of a job, and the fear of such black sheep would, as we have said, keep any stranger from a self-respecting architect's list.

We can understand the objection of the Northern Counties Federation to the arbitration clause, which they say is, in their district, usually inserted, referring disputes to the surveyor of the Council or other authority. We grant their plea that the objections which may be taken to the nomination of the architect employed on the works as arbitrator apply with tenfold force where the arbitrator is also at the same time in the permanent employment of one of the parties to the contract. Anyone who has knowledge of the relations that usually exist between the permanent official of a public body and his employers will recognise that he ought not to be placed in a position where he may have to decide questions between himself or his employers and another party. There is, however, a very wide difference between the universal arbitration of an architect or borough surveyor and the provisions of the Woolwich clause, and we think that the R.I.B.A. conditions take the happy mean between the two extremes.

Some of the specimen clauses included in the report of the allied County Federations are almost ludicrous in their gross unfairness. Thus we read that in a form of contract prepared for general use by one County Borough is the following clause: "Should anything appear in the drawings or specification which is not named in the bill of quantities it shall be deemed to be included in the contract, and no extra shall be allowed in respect thereof." The burden of such a clause depends, however, very much upon whom rests the onus of responsibility for the accuracy of quantities. We remember that, in years gone by, some such clause was almost universal, and it still remains in use in some architects' form of contract, but the quantities were then prepared by a surveyor who was responsible to the contractor for their sufficiency and to the employer for their moderation, a surveyor who staked not only his professional reputation but his banking account upon the accuracy of his work.

Another point on which members of the National Federation feel aggrieved is the question of time penalties and time extension for delay or postponement on the part of a council or their surveyor. We find exception taken to the provision that "the date for the completion of the contract shall be extended for a period equal to the time of such delay or postponement." Such a clause might seem eminently fair to a lawyer or an employer, but it is pointed out that, "bearing in mind that a working day is not of equal value all the year round, such a clause, strictly construed, might work great injustice." We think the objectors might go further still. All who know how a contractor's business ought to be managed are aware that organisation is of paramount importance. Now, if a contractor has organised his arrangements for carrying out a certain defined piece of work in a certain specified time, it is obvious that any interference with his arrangements may so upset his organisation that the

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VILLA SIMPANG.—A MODERN HOUSE AT THE HAGUE. [*Het Huis.*

postponement of a certain part of the work for a week may obstruct the completion of the contract for a month. There is scarcely anything that requires so much skilful and broad-minded judgment on the part of an architect as the determination of the time extension that should be allowed to a contractor by reason of any variation of the original intention, whether it be addition or diminution, delay or postponement of the whole or any part. On the other hand, we cannot admit the suggestion implied by the assertion that "the expeditious completion of the contract is, from an economic point of view, even more necessary in the contractor's interests." To a superficial thinker this might appear to be true, but those of us who have had experience know, firstly, that it may be to the general advantage of a contractor's business as a whole to spin out the execution of some particular job, and, secondly, that it is usually when the back of the job is broken, that delays occur in the finishing off of minor matters of odds and ends.

The experience of war conditions has naturally led to suggestions by several of the allied County Federations for the protection of contractors against war risks, and the Hull Association suggests that Clause 21 of the R.I.B.A. form of contract should read as follows:—

"The contractor shall be responsible for any structural or decorative damage to property caused by the building under this contract if occasioned by any neglect, default, want of proper care or misconduct on the part of the contractor or of anyone in his employ during the execution of the works. The contractor shall also hold the employer harmless for any injury caused by the works or workmen to persons, animals or things, and further against any claim under the Workmen's Compensation Act, 1897, or any amendment thereof. The contractor shall also be responsible for any damage caused to the building by frost or inclemency of the weather, and shall reinstate all damage caused by the same and thoroughly complete the whole of the works. The contractor shall not, however, be responsible for any damage which may be caused by war, any acts of the King's enemies, civil disturbances or any such similar circumstances outside the control of the contractor."

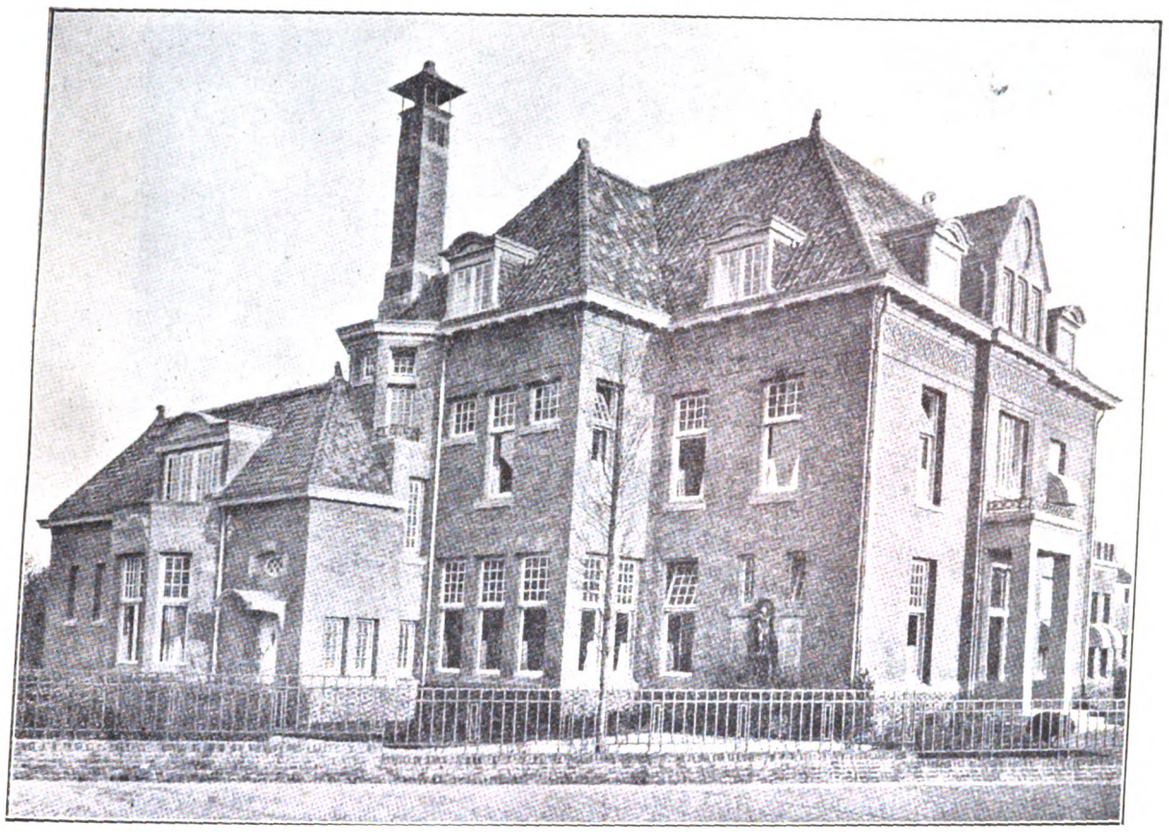
NOTES AND COMMENTS.

THE University of Sheffield in its Department of Architecture provides a wide choice of courses for the architectural student. He can take a course forming part of the ordinary degree of Bachelor of Arts, a course leading to the degree of B.A. with honours in architecture, a certificate course of two years day study and one year part time, a diploma course of two years part time following the certificate course, special evening courses in architectural drawing and in the history of architecture, courses in surveying based on the examination programme of the Surveyors' Institution. The degree course in honours is, like the combined certificate and diploma course, a five years one, three years day study and two years part time. The Department is approved and recognised by the Royal Institute of British Architects, which grants exemption from its own Intermediate Examination to students who obtain the Degrees, Diplomas or First Class Certificates awarded by the University. During the part time courses the students spend a large part of their time in architects' offices as articled pupils, the courses being intended to supplement, rather than to take the place of office training.

The L.C.C. School of Building may be supposed to be primarily intended for the instruction of young builders, but it also professes to cater for those who intend to enter the offices of architects, surveyors, or structural engineers who specialise in building work. The strong point of the School is that theoretical instruction is united with practical training in brickworking, masonry, carpentry and joinery, plumbing, painting and decorating. The full course is covered in two years, so that it is obvious that the embryo architect does not learn much of the art of architecture.

The School of Art Wood-Carving, 39 Thurloe Place, South Kensington, which is under Royal Patronage, has been reopened after the usual summer vacation, and we are requested to state that some of the free studentships in the evening classes maintained by means of funds granted to the school by the London County Council are

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[*Het Huis.*

VILLA SIMPANG.—A MODERN HOUSE AT THE HAGUE.

vacant. The day classes of the school are held from 9 to 1 and 2 to 5 on five days of the week, and from 9 to 1 on Saturdays. The evening class meets on two evenings a week. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the Secretary.

The Local Government Board has issued a list of sanatoria and other residential institutions approved by them under the National Insurance Act, 1911, for the treatment of persons suffering from tuberculosis, and resident in England (excluding Monmouthshire), with the names of the administrative counties and county boroughs in which the institutions are situate, and the date on which the approval expires in each case. This should be useful not only to those unfortunates who require treatment as patients, but to those who desire to study the planning and construction of such institutions.

It is stated that out of nine million French dwelling-houses and 139,000 industrial buildings, nearly one-fifth are situated in the devastated area. Houses are being rebuilt close to the fighting line. The reconstructed villages will have lost their former originality and picturesqueness, and this is deplored, but they are to be rebuilt on English lines, and will gain much from a sanitary standpoint.

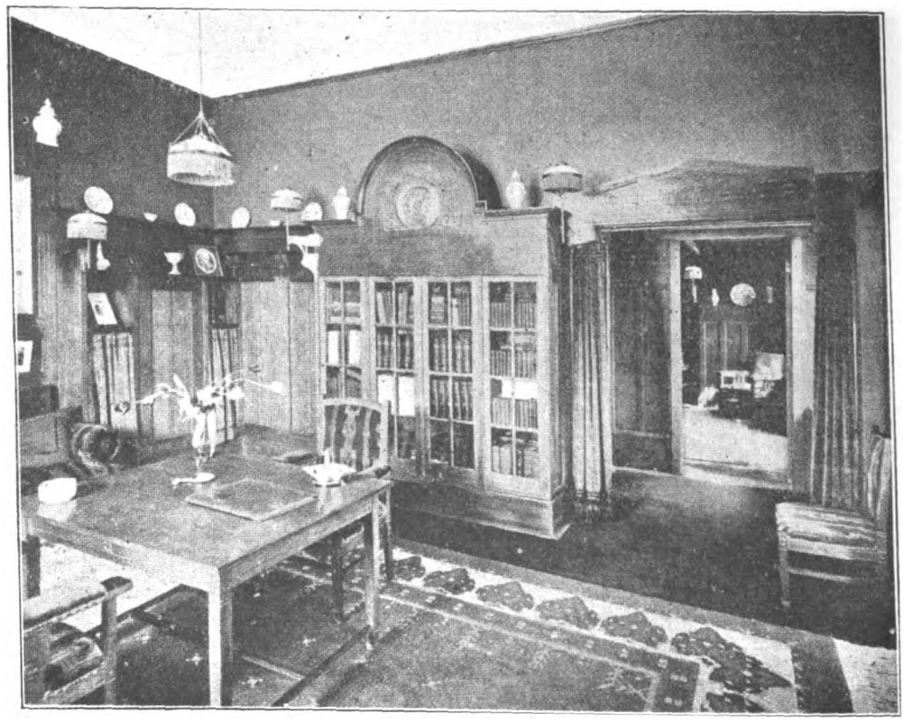
Architectural students must be careful at the present time where and how they go sketching, or they may meet with the experience of an Edinburgh architect who was haled before the Sheriff at Cupar charged with having made a sketch of Burntisland showing Burntisland tidal harbour, the Firth of Forth and the vessels lying in the harbour. The Fiscal said accused was a very respectable man, and there was no suggestion that he had made the sketch with any ulterior motive. He seemed to have a great fancy for sketching old castles. Accused said it was purely the beauty of the scene which he was sketching. It was not an architectural drawing. He asked that the sketch, which had been retained by the police, should be returned to him, as some of the details were of value to the Royal Society for the Preservation of Ancient Monuments. The Sheriff said it was necessary that a permit should be taken out. One never knew when sketches might be of value. He had seen that the German aviators flying over the Gulf of Finland had been much aided by sketches which the Kaiser had made when on a visit to the Czar. He imposed a modified fine of 5s., and directed that the sketch should be returned to accused.

The subject of the restrictions now placed on sketching, and they apply to photography as well, is the theme of a letter to the "Irish Times," from Mr. J. M. Kavanagh, R.S.A., who writes:—

According to a recent order emanating from the Major Intelligence Officer, General Staff, Irish Command, artists are forbidden to sketch on the Dublin coast from Cable Point, seven miles north of Howth, to Bray Head, inclusive, also in the Dublin Metropolitan Police District area. This drastic order hits Dublin artists very hard. If we landscape painters attempt to collect the material from which we build up our pictures, we are liable to be brought to the nearest police station, and charged with a breach of the Defence of the Realm Act. Worse still, in the notice issued (Paragraph 5), the public are invited to act as spies upon us.

In the course of an article contributed by Professor Flinders Petrie to the Papers of the British Constitution Association he describes the enormous waste of life by deliberate dawdling in working hours as being perhaps the most serious loss to England in the present age. He estimates that this dawdling involves a much larger loss of life and wealth within four or five years than the enormous losses of the present war.

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VILLA SIMPANG.—GENTLEMEN'S ROOM. [*Het Huis.*

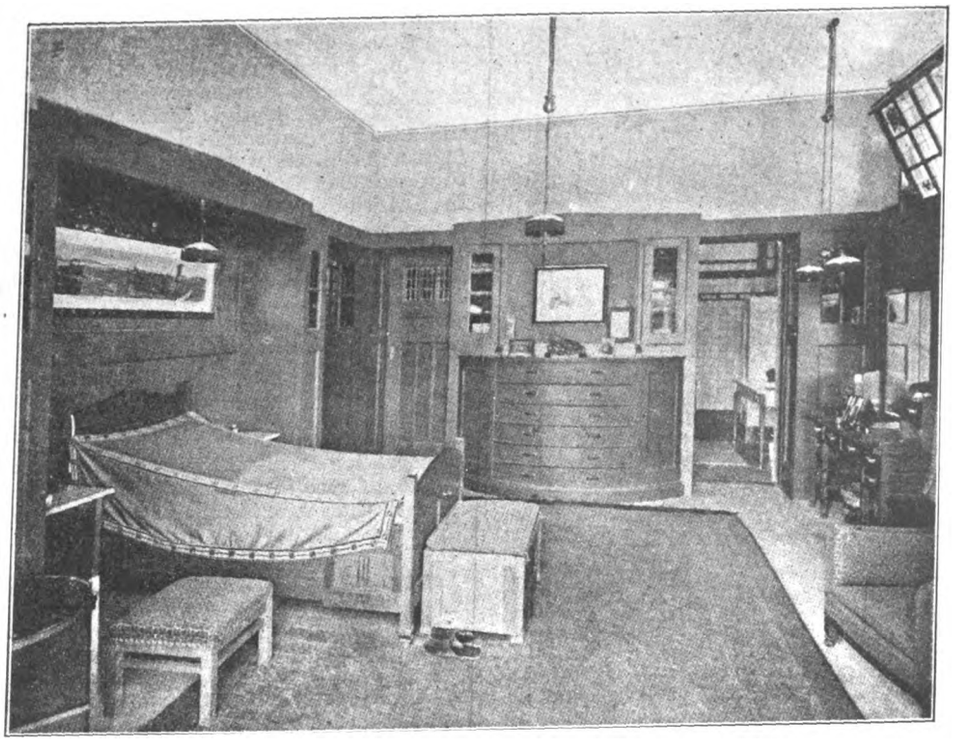
Among a number of examples that he gives he says: In a public institution I watched men digging shallow drain trenches. They did in a week what the same number of Egyptians at a quarter of the pay would do in a day. Effective work, one-sixth. In a coast town I watched, day by day, four men employed to lay water-pipes. They played so successfully that they took about a week to do what they might have done in a day. A further reason for the delay was that a sack of coke was brought up every day for the night watchman's fire—in August—and the whole sackful disappeared each morning. Effective work, one-sixth. In a Government institution a mason whom I watched during a week or two spun out his work so well that he kept himself quite fresh to hurry off at four o'clock, after which, as he said, he had "a nice little business at home in funeral work." Effective work between a fifth and a tenth.

In the same institution a gang of men and foreman, supposed to be cleaning, carefully got into effective attitudes which were restful, but allowed of instant action. There they conversed until they heard some official approaching, when they all swung into motion, to be arrested again as soon as observation was over. Certainly not over one hour's real work was done in the day. Effective work, one-tenth, or less. In ordinary jobbing or carpentry work the time occupied by a man at 1s. an hour, from a good firm, was from six to ten times what I could do the same work in, and it was spoiled by ridiculous blunders of using wood wrong side out. Effective work, one-tenth or less. In a public institution some ready-prepared fittings were brought to be fixed. The work to be done was putting in six screws, attaching four hinges and two locks. Three hours would be ample for a good man alone; a smart man would do it in two hours or less. By skilful use of conversation, messages, fetching refreshment, an hour for tea, and other devices, three men succeeded in spending two whole days, which works out at about one and a half hours for each screw put in. Effective work, one-twentieth.

In household carpentry, a highly recommended man and his son were engaged at 1s. 5*d*. an hour together, on shelving in an empty house. I did all the headwork of planning, and gave a list of lengths to be cut out of each board. They stacked the boards on trestles, so as to cut breast high, and gently sawed with only the weight of the saw and no pressure. In three days they did one-half the plain cuts, and then gave up for the rest. As the matter was urgent, I finished off the other half of the work in two hours alone. Effective time, one-thirtieth.

In a public institution I noticed a man with a crowbar under a small paving-stone, gently rocking it with his foot. As he could have lifted the stone by hand in a few seconds it attracted my attention. Half an hour later I found him still rocking the same stone. Effective time, one-hundredth, or less. In the same institution a plumber came in on a Saturday by half-past nine o'clock to the job he was working on; he played with his tools for half an hour, and then went off elsewhere; he returned later and played with clanking tools for half an hour more, and then packed up at half-past eleven o'clock. Effective work, none. Now, this is just a sampling of what is going on everywhere, and has been going on increasingly for the last fifty years. Among the elder men, who work singly as jobbing workmen, there is decent work still to be found. I know one such, and cling to him. But, in the great majority, this deliberate waste of the greater part of their lives is dragging down this country worse than any war. Everything used by the workman is far dearer than it might be, and work is so dear that as little is ordered as possible. The effect on public institutions is that all such places are badly provided for, or else rates are monstrously high, in order to pay for the wasted lives. The whole nation is held back in every direction by huge bills and heavy taxation, by deferring requisite work owing to its cost, and by ruining the moral sense of the workers. Housing is terribly short, owing to builders only laying a third of the bricks they used to lay, and having higher wages than they formerly had. Unless we get rid of this incubus of artificial training in sloth we shall deserve to perish as a nation. The

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[*Het Huis.*

VILLA SIMPANG.—A BEDROOM.

effective men will go where they are not held back by enforced checks on their powers, and the rest will largely be starved out by economic crisis or war. They will deserve it.

In an article in "The Daily Telegraph" on the Value of Appearances, Mr. John Wardle, Commercial Manager of the Metropolitan Railway Company, points out very truly that it is now recognised that one of the greatest business assets to those firms with which the public deals direct is for the firm to be housed in imposing buildings, which establish to the superficial observer once and for all the prosperity of the business. The greatest of our retail houses find it worth their while to invest thousands of their capital in making their buildings and the appointment of those buildings handsome, luxurious, and characteristic, and this is simply because the mere outward show implied makes a sub-conscious appeal to the public. This appeal is valueless if it is not supported by good service and honest dealing, but combined with these it is irresistible.

When one departs from the world of retail business where the appeal is obvious to consider the question in relation to other spheres of work, this matter of appearance becomes much more complicated. Why, for instance, should the well-established bank, the reserve funds of which are known to the world, find it necessary to house its headquarters in a marble palace? The head offices of our great banking corporations are almost always designed with lofty entrance halls, in which space is lavish and decoration is carried out in a most impressive manner. At first sight there seems no psychological or practical reason why a bank should not transact its business in far simpler and more economical buildings. Indeed, it should surely recommend itself to intending clients that the corporation with which they propose to entrust their funds should have mastered an elementary lesson in economy. Such evidently is not the case, and it is proved by the fact that banks, insurance offices, and other great financial firms have had to follow the lead of the retail houses and wear their prosperity on their sleeves.

WAR ITEMS.

In view of the urgent need for national economy and other circumstances arising out of the War, the Board of Education find it necessary to give notice of the following changes in their arrangements for the National Competition, Examinations in Art, and Awards in Art, 1916:—

1. The Board will not hold a National Competition in 1916.

2. The Board hope to be able to hold the Examinations in Art as usual, and have issued Regulations for 1916 accordingly. They desire, however, to give notice that it may prove necessary at a later date to suspend the Examinations. In that event they will endeavour to give as long notice of the change as possible.

3. The Interim Regulations for Scholarships, Exhibitions, Free Studentships, and other Awards in Art applicable to the year 1914 are provisionally continued in force subject to the following modifications:—(*a*) The Royal Exhibitions, National Scholarships, Free Studentships and Local Scholarships to be awarded in 1916 may be restricted to numbers less than those stated in paragraph 1 of the Regulations. (*b*) The Board may find it necessary to restrict the number of new Local Exhibitions in Art to be aided under the provisions of Chapter II. of the Regulations. (*c*) The award of Princess of Wales' Scholarships may be suspended for 1916, or, if continued, will be made on conditions to be announced later. (*d*) The Board will not hold Short Courses of Instruction in Art at the Royal College of Art in 1916. (*e*) The Grants in aid of visits to Museums and Centres of Art Instruction will be suspended until further notice.

4. The Board desire to take this opportunity of giving notice that at some future date after the conclusion of the War they propose to hold one further Special Examination for the benefit of candidates who had almost completed the requirements for the Art Class Teacher's Certificate and the Art Master's Certificate when the old Regulations expired. Provision will be made for the re-examination of—(*a*) persons who were examined in 1914 in subjects necessary to complete an Art Class Teacher's Certificate or an Art Master's Certificate, as

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[*Het Huis.*

VILLA SIMPANG.—WALL-FOUNTAIN.

the case may be, but failed in one or more of those subjects; (*b*) persons who, having the Art Class Teacher's Certificate, were examined in 1914 in Drawing from the Life, or Drawing from the Antique, and have obtained, then or previously, at least a Second Class in each of these subjects. The detailed arrangements will be announced in due course, and at least three months' notice will be given of the Special Examination.

R.I.B.A. AND HUTTED CAMPS.

A STATEMENT of great interest to architects was made by the Under-Secretary for War in reply to questions asked in the House of Commons by Mr. Touche, M.P. The latter gentleman asked if, in January of this year, on its being known that men were wanted for hut work in France, the War Office were reminded of the offer of the services of the architectural profession, made through the Royal Institute of British Architects in September 1914, and how many men nominated by the Institute or its President were thereupon appointed to work in France.

Mr. Touche also wished to know (*a*) if the offer of the services of the Royal Institute of British Architects, made through the President of the Institution in May 1915, which was stated to be not availed of because the greater part of the work was then finished, was supplementary to previous offers, and was submitted after hearing that many huts had been badly placed and badly built, with the hope of preventing anything of the kind in the future; (*b*) if a formal offer of the services of the architectural profession was received through the R.I.B.A. in September 1914, and if any steps were taken by the War Office at that time to avail themselves of the services of competent men so offered; (*c*) if, in October 1914 or shortly afterwards, the names of about fifty men, selected with great care as suitable for supervising certain military works then under consideration, were submitted to the War Office by or on behalf of the R.I.B.A., and whether the services of any, and if so, how many of these skilled men were thereupon utilised; (*d*) if the Under-Secretary for War would state the total number of men whose services had been employed by the War Office arising out of the original and subsequent offers of the R.I.B.A. to supply competent kind of men for every kind of work connected with the profession.

Mr. Tennant replied: Offers were made by architects, and names of gentlemen selected by the Royal Institute of British Architects were submitted to the War Office in November, but for the building of the large hutted camps in the British Isles and for work in France civil engineers rather than architects were needed. The huts in all cases followed typical plans prepared by the already existing technical staff at the War Office, copies being distributed to various local officers. There was consequently comparatively small scope for designing. But the local problems of water supply, sewerage, lighting, &c., which varied in every case and were in some cases of great magnitude, were such as appertain to the engineering profession, and experts in these branches were engaged in various places to supplement the technical staff at headquarters and in various commands. About ten gentlemen who were members of the R.I.B.A. were so appointed, as far as can be traced, but none of these were in the list submitted in November by the Institute. As far as the quality of the hutted camps is concerned, the Army Council invited the President of the Institution of Civil Engineers to appoint a committee of inspection. This was done, and a strong voluntary committee, with the President as chairman, visited all the large camps in the early part of this year, while they were still under construction. They dealt with design, construction, materials, and adaptation to sites, though not with any purely military questions, and the views they expressed supported the action taken by the War Office generally in respect of the gigantic task with which they were confronted last year. As far as the R.I.B.A. is concerned, it may be said that, having due regard to the requirements of the public service, and the enormous number of offers received from other institutions and individuals, the Institute received a due share of attention and of appointments.

ILLUSTRATIONS.

DECORATIVE DETAIL OF THE "LUSITANIA."

WHEN on May 7 the trans-Atlantic leviathan was torpedoed off the Old Head of Kinsale, co. Cork, one of the finest vessels afloat, from the standpoint of scientific shipbuilding and engineering construction, as well as regards high artistic endeavour in internal decoration, met her doom.

The turbine-driven quadruple-screw steamship "Lusitania" measured 785 feet from stem to stern; had a moulded breadth and depth of 88 feet and 60 feet 4½ inches respectively; had a gross tonnage of 32,500 tons; and provided accommodation for carrying 2,198 passengers and a crew of 827 all told.

Entrance to the saloon was obtained through the medium of a grand stairway beginning at the main deck first-class entrance, and rising to the upper, shelter, promenade, and boat decks. Situated in the centre of the stairway were two electric passenger-lifts available for reaching the four upper decks. They were made of polished mahogany, and the frames and gates were of a decorative character, the black and gold metalwork harmonising exceedingly well with the contrasting white treatment of the entrance halls on the different decks.

The magnificently appointed first-class dining saloon, which could seat 500 passengers, was constructed so that it pierced both the upper and shelter decks; thus in reality there were two saloons. The lower saloon was 86 feet long and 88 feet broad, whilst the upper saloon was 62 feet long and 65 feet broad. As will be gathered from the illustration, it was treated in the Louis XVI. style, having white painted walls with gilded enrichments. The sideboard was of veined mahogany with fine gilt bronzed panels, and all the carving on the walls and pillars was cut out of the solid wood. The ceilings were formed into variously shaped panels, enriched with ornamental fibrous plaster. Here the central decorative feature was the elliptical-shaped dome, rising to a height of 30 feet, which had four oval painted panels of cupids and a like number of delicately treated floral plaster panels occupying alternate segments. At springing the ribs of the dome were enriched with heraldic forms.

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On the boat deck were situated three of the first-class public rooms, namely, the lounge and the smoking and writing apartments. The entrance hall on this deck was beautifully decorated, the walls being done in white and gold, and the upholstering of the lounge seats and chairs was carried out in a delicately figured rose-shade tapestry. Behind the entrance hall was the first-class lounge, measuring 68 feet by 52 feet. It was decorated in a late Georgian style, the walls being panelled in mahogany, which was veneered and inlaid in specially selected and finely-figured woods, the central area having a deep cove enriched with a frieze of floral festoons in fibrous plaster, from which sprang a beautifully designed stained-glass domed roof, raised to a height of 20 feet. It was divided into twelve panels portraying the different months of the year, the work of Mr. Oscar Paterson, of Glasgow. As in the smoking-room the central area was divided off by square piers, and the flat ornamental plaster ceiling treatment was of a high artistic standard. Two striking features of the room were the massive veined marble chimney-pieces arranged at the forward and after end. The side supports took the form of Ionic columns with ornamental capitals and entablature, each crowned with an oval-shaped arch. Over the fire-places were arranged beautifully enamelled panels, executed by Mr. Alexander Fisher, of London. In keeping with the wall treatment the furniture, which was supplied by Messrs. Waring & Gillow, Ltd., of Oxford Street, W., was of mahogany with inlaid tables arranged in groups; whilst the heavy effect was eliminated to a great extent by the introduction of satinwood pieces and the green colour scheme of the carpets, coverings, curtains, and cushions.

The smoking-room, situated at the far end of the vessel, was 55 feet long by 50 feet broad. Here an eighteenth century scheme of decoration was carried out, the walls being panelled with finely-grained and figured Italian walnut. Occupying a central position was a beautifully proportioned chimney-piece, with plain panelled mantel; above which, in the cove, was a carved coat of arms. In this apartment the pieces of furniture were replicas of the best models of the Queen Anne period, designed and made by Messrs. Marsh, Jones & Cribb, of Leeds. By the harmonious blending of the mellow tones of walnut with the general tone of old Italian red introduced an effect of repose and richness was at once produced on entering the apartment.

One of the finest schemes of decoration was carried out in the writing-room and library, which measured 44 feet by 52 feet. It was entered from the grand hall at the fore end of the boat deck. The design was in the Adam style, the walls being spaced out with carved pilasters and mouldings, with panels filled in with silk brocade of delicate grey and cream tones. Rising from the centre of the ceiling was a leaded-glass domed roof, the moulded ridge being surrounded with a delicately designed plaster ornamentation in the form of festoons. The glazed windows, occupying one entire side of the apartment, had beautifully embroidered draperies of Rose du Barri silk tabouret, of a unique pattern copied from an old document of the period, the upholstering of the chairs and settees being done in the same material. Harmonising well with the draperies and upholstery was the specially woven rose-coloured carpet. Some very fine pieces of furniture were made for this apartment by Messrs. George Trollope & Sons and Colls & Sons, Ltd., of London. They were executed in inlaid mahogany in keeping with the carved bookcase. Of particular merit were the writing tables and the finely-chased and mercury gilt lamps.

On the spacious promenade deck a large number of specially fitted cabins were arranged, comprising regal suites of four rooms and others of two rooms, all of which were decorated in representative styles of various well-known periods. The suites and some of the special cabins on the starboard were furnished by Messrs. Waring & Gillow, Ltd.; those on the port side by Messrs. Trollope. In addition, Messrs. Wylie & Lochhead, Ltd., of Glasgow, were responsible for a large number of special rooms carried out in a refined and simple style, representative of the late Renaissance period, the schemes selected being those of the Louis XV. and Louis XVI., the English and Georgian, as well as the simpler styles characteristic of the latter part of the eighteenth century. As regards the decoration of the starboard regal suite, the dining-room was treated in the Louis XVI. style, the walls being panelled in mahogany, with inlaid mahogany furniture; and the drawing-room was in the Adam style, having walls panelled in sycamore, in harmony with the inlaid satinwood furniture. On the port side the regal suite was also carried out in the Louis XVI. style, the details being based on the Petit Trianon at Versailles. The walls of the dining-room were panelled with fine Italian walnut, embellished with carved ornaments and mouldings of burnished gold, the ceiling being panelled in white and gold. A striking feature was the chimney-piece of Fleur-de-Pecher marble, with marble hearth and log fire. The furniture, harmonising with the panelled walls, was of Italian walnut and gold. Connecting the afore-mentioned apartment with the drawing-room was a sliding glass screen. A white panelling treatment was adopted for the room, with carved gilt mouldings, enriched with beautifully painted flower panels. The ceiling was specially designed to meet the arrangement of the electric lights, and the whole scheme was completed by heliotrope and cream-coloured curtains, with green settees and carpets and handsome mahogany furniture. One of the bedrooms was treated in a scheme of rose-coloured silk panels, with green inlaid satinwood furniture, the other being done in white and gold, relieved by Wedgwood cameos. The door and window curtains were of blue silk brocade enriched with sprays of flowers of a charmingly delicate design.

For second-class passengers four public rooms were provided on the promenade deck. Excepting the drawing-room, carried out in the Louis XVI. style, the dining-saloon, smoke-room, and lounge were all treated in designs of the Georgian period. Delicately-carved panels adorned the walls of the dining-room, the pillars being in white. The smoking-room, like the lounge, had panelled mahogany walls and furniture, with white ceiling and central stained-glass domed roof, enriched with fibrous plaster ornamentation at ribs, with deep frieze in cove of floral festoons. At the forward end of the smoking-room was a handsome mosaic panel representing a river scene in Brittany, executed by Messrs. Guthrie & Wells, Ltd., of Glasgow.

The designs for all the public rooms were made by Mr. James Miller, A.R.S.A., F.R.I.B.A., in consultation with Mr. Robert Whyte, architect to the builders, Messrs. John Brown & Co., Ltd., of Clydebank and Sheffield, who were also responsible for the work in the main saloons. In addition to the above-named contractors, the Bromsgrove Guild, Ltd., of Birmingham, did the plaster work in the lounge, smoking-room, writing-room, and on the staircases, supplied the electric fittings in the saloon, the smoking-room, and at the staircase, and executed much of the metalwork.

ART AND CHARITY.

THE League of Belgian Artists is about to publish an album of Belgian art in aid of various charitable works.

This publication, which will be a remarkable undertaking, is to contain over thirty reproductions in colour of pictures by the greatest artists of Belgium, together with many half-tones.

The volume, which will be entitled "Belgian Art in Exile," will be issued by "Colour," the new art monthly, and sold for the benefit of the "Belgian Red Cross," "Belgian Convalescent Home," "Belgian Gifts for Soldiers," and other Belgian charities.

While aiding these most deserving organisations, "Art in Exile" should also be the means of making known abroad the artistic strength of modern Belgium.

Their Royal Highnesses the Duchess of Vendôme and Princess Victor Napoleon have honoured the undertaking with their patronage and support, and a committee of publication, which contains the names of Messrs. Frank Brangwyn, Paul Lambotte—director of Beaux Arts—Albert Bartsoen, Emil Claus, Jean Delville, Victor Horta, Victor Rousseau, A. Wilson Barrett—Editor of "Colour"—and Edouard Claes, General Secretary, will assure the artistic get-up of the publication.

The League of Belgian Artists appeals to all who have at heart the desire to relieve the sufferings of their heroic soldiers to help by obtaining subscriptions for this remarkable publication.

Subscriptions at the price of 5*s.* per copy may be forwarded to the Editor, "Belgian Art in Exile," offices of "Colour," 25 Victoria Street, S.W.

MR. N. F. SPENCE, surveyor and engineer to the Hartshorne and Seals Rural District Council, has been selected out of ninety-five candidates for a similar post under the Marlborough Town Council.

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PALESTINE EXPLORATION IN 1914.

WE have received for review the double annual for 1914-15 of the Palestine Exploration Fund, with a prefatory note telling us that its two authors, Mr. C. Leonard Wooley and Mr. T. E. Lawrence, were both called away for special military service at the beginning of the war, and that Mr. D. G. Hogarth was kind enough to see the volume through the press.

There is a thinly veiled sense of humour running through the book, and one feels that had its authors been less restrained by the seriousness of their work they would have thoroughly enjoyed giving a wider range to the lighter mood which shines through on every available occasion.

Chapter No. 1, "Our Route in the Desert," tells you:—

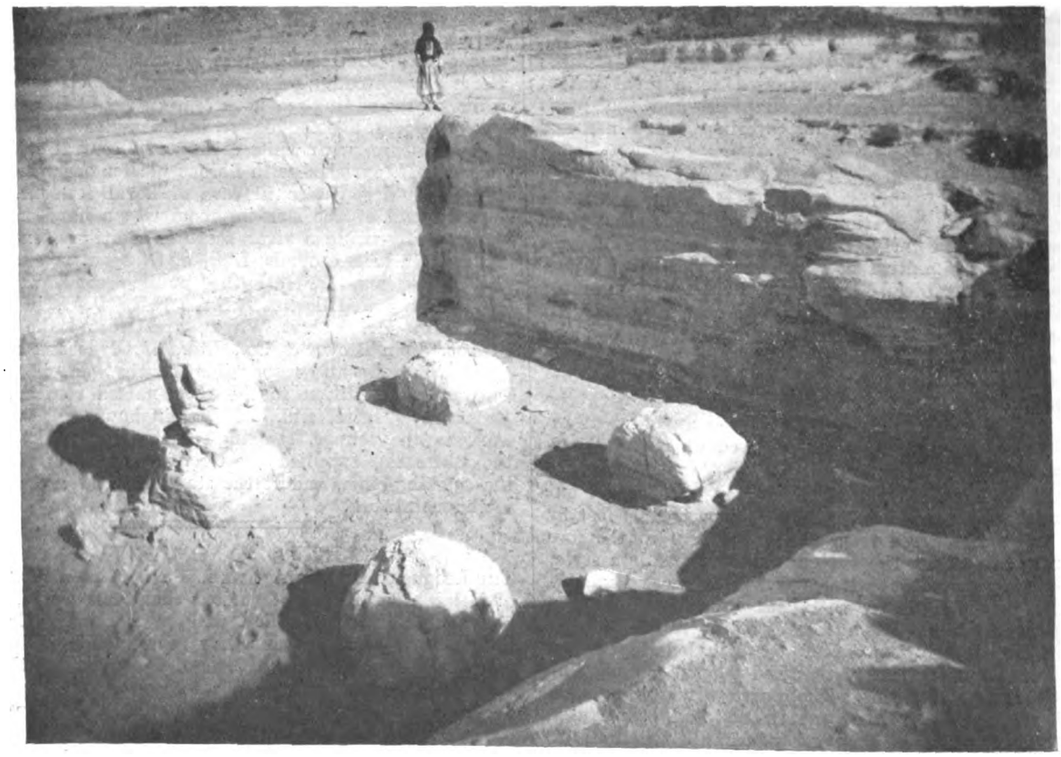
"If ye go thyder, ye must consider
When ye have lust to dine,
There shall no meat be for to gete,
Nether bere, ale, ne wine,
Ne shetès clean, to lie between."

Chapter 2, on "The History of the Southern Desert," is headed, "A blank, my Lord." and when one remembers that this expedition was sent to map out the country in connection with the general survey of Palestine for Government and educational purposes, there rises in one's memory a vision of "that perfect and absolute blank" which served as an ocean chart to the captain and crew of the new classical Carrollian legend.

Nevertheless, the explorers have apparently found material enough to provide a whole volume of the most interesting reading, dealing with vivid descriptions of the characteristics of the country, its inhospitable and tenacious nature in that any land reclaimed quickly falls back again into its native aridity, the lack of any written records, and the difficulty of identification of places whose names had but a limited duration owing to the movement of nomadic tribes and the renaming of the same spots by new comers. On the other hand, the permanence of material remains such as stone circles, cairns, &c., is a notable feature, for "everything that has ever been made in the desert is kept for ever, for all to see. The careless traveller who piles up four stones in a heap by the roadside, here erects an eternal monument to himself."

The main objects of the expedition, we are told, were four in number: "To get some idea of the character of the country in successive periods; to trace the Darb el Shur, the old inland route of caravans from Central Palestine to Egypt; to identify sites mentioned in the Bible and other historical writings; and, though this lay outside the limits of the new survey, to study the neighbourhood of Ain Kadeis, supposed to be the Kadesh Barnea of the Israelite wanderings. . . . In all these endeavours, except, perhaps, the third, we had some measure of success. If a disproportionate amount of our results is devoted to Byzantine instead of to earlier and more interesting remains, it is because we were obliged to deal with the actual rather than with the desirable."

The party was one of five which were under the leadership of Captain Newcombe, R.E., and the authors say: "We were sent down in the midst of his work (which was being done against time) to bother him on a subject that furthered his own studies in no way. We had with us only a scratch outfit, raked up in Gaza. Yet he welcomed us, stripped himself of what he called his 'luxuries' for us (and he was already living in the barest way), got us camels, and in Khalasa fed us till our stores arrived. Living with him, we got a clear insight into his methods. He had five parties under him, and yet in this unmapped wilderness always knew exactly where each party was, and how its work was going on. He established a regular post and supply caravans from El Arisa, Gaza, and Beersheba to feed his men and animals. He was ambassador for all of us to Arab tribes, and to Turkish officials, and managed both, leaving behind him a reputation which will smooth the way of any English traveller in the desert. This labour of organisation would have been enough for most men living as roughly and uncomfortably as Newcombe did; yet, in addition he contrived to map a larger district than any of his assistants. Off by dawn, with guides and instruments, he would return to camp at dark, and work perhaps till midnight, arranging and calculating and recording for the benefit of the other parties. He was the prime begetter of the survey, and thanks to his elaborate camel contract, his skilful handling of his transport and supply columns, and the Spartan simplicity of life to which he also converted his subordinates, the expedition, in economy of money and time, beat all records of similar surveys in the East."



BYZANTINE CISTERN ON THE DARB EL SHUR, NEAR BIR BIREIN.

From Gaza to Beersheba the explorers found many traces of an older and more settled civilisation: village sites strewn with Byzantine pottery, olive-presses built of marble and cement, and broken water cisterns.

After leaving Khalasa, on the road to Ain Kadeis, they

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missed their baggage animals, which had been sent on by a more direct route, and the night in consequence had to be spent in the open; on the next day a guide was secured, and they made straight for Ain Kadeis. The fact that during the night their camels bolted and that the rest of the way had to be trudged on foot is treated as an advantage rather than as a calamity, as the tracks which they followed would have been almost impossible for the animals. The intense honesty of the Arabs is shown by the camels being brought in the next day.

The work of the author's party was to explore the country lying between Gaza, Beersheba, and Akaba, consisting at first of rich undulating plains, which change south of Beersheba to barren hills of soft limestone and flint, and this arid, desolate character is maintained more or less throughout the whole of the country to the south, limestone and flint apparently forming the never-ending theme of the desert; yet at Khalasa the stony hills are left behind for a while, and a stretch of flat sandy country is reached.

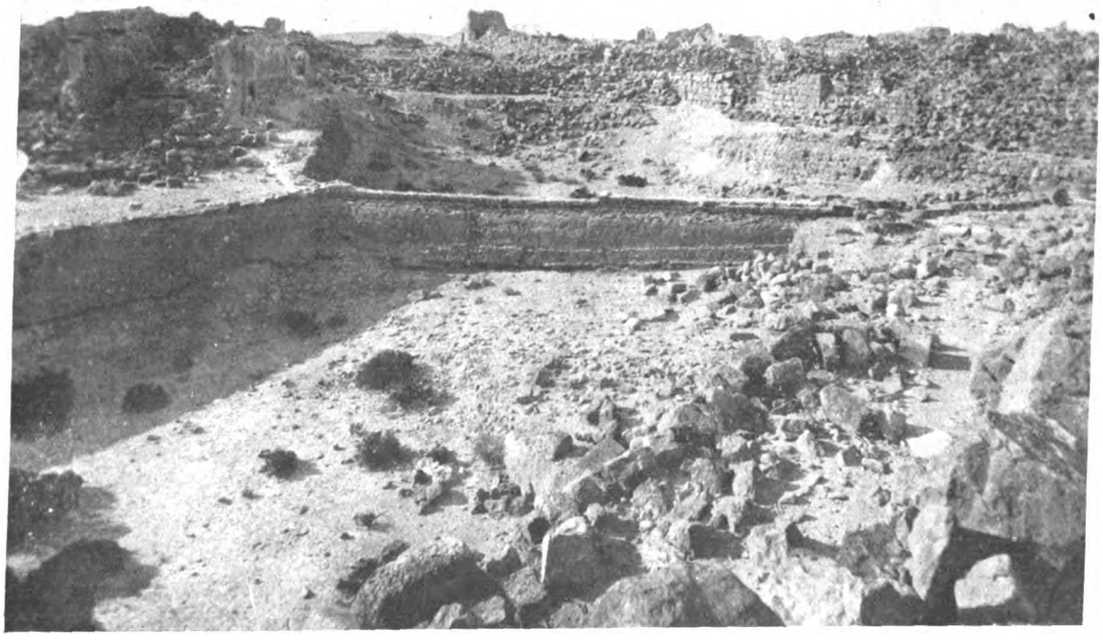
Travelling southward, a belt of sand dunes has to be crossed whose long, regular drifted ridges are sometimes forty and even fifty feet high. Indeed, the whole country appears to be a barren waste. Here and there are to be found patches of a temporary cultivation on the light soil, sufficient to supply the needs of a few wandering Arabs who have pitched their tents for a while, but everywhere is evidence of a fuller and organised system belonging to a former settled civilisation, which, the book goes on to tell you, must have been entirely dependent on extraneous sources, and this was during the Byzantine period when the country enjoyed a prosperity to which it had never attained before, and to which it certainly has never attained since. This prosperity has been attributed by former explorers to the presence of a greater rainfall in those times than in earlier or subsequent periods, but the result of the present exploration has led to the belief, in the absence of any positive proof, that this is not the case.

The desert in those times depended largely, if not entirely, upon stored water, the cisterns and means of storing having all been discovered and brought to light, and the examination of incontestably ancient wells, wells known to have existed before and during the period of the country's greatest prosperity, has proved beyond a doubt that the water-level of to-day is precisely the same as in those days, and that at no time has it ever exceeded its present highest level, taking years of drought and years of heavy rainfall into consideration.

The economical system for catching every drop of water as it fell from the buildings, any inclined slopes, or along the main roadways and conducting it to "catch-pits" and reservoirs at stated intervals for irrigation and to serve the needs of travellers on the high road, is most interestingly described. The thought of vines and olives having been induced to grow in the present scene of flint-strewn desolation can only be accounted for by remembering the tremendous labour this really artificial cultivation entailed, an enforced labour by no means self-supporting, but which acted merely as an indispensable adjunct to the life imported from outside by the trade routes, the desert at that time being nothing but a highway dotted with military posts and religious foundations.

Leaving the days of its prosperity and looking further back there are traces of an early, very early, occupation, but not sufficient evidence to lead to a consecutive history, but, on the contrary, to prove such occupation to have been merely of a transitory and nomadic character. In fact, the whole country has never been anything but "a roadway at best" throughout its history, and also a "very unpleasant one."

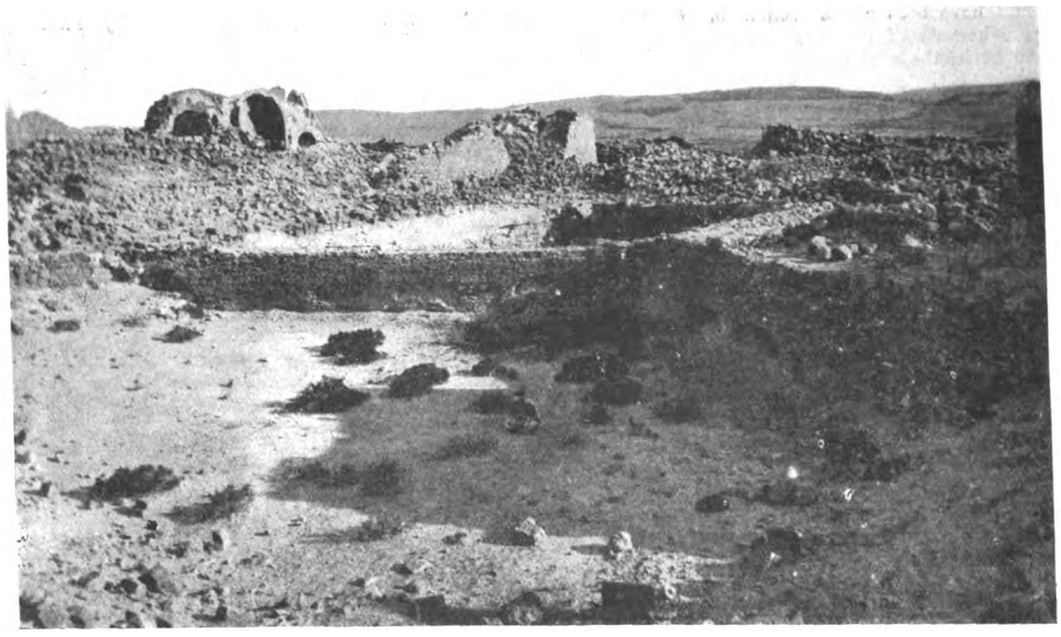
An interesting discovery was made in regard to the flints found in the soft chalk limestone, and which in time get washed out by the heavy rains and dried out by the winds and cover the country for miles and miles. The wind drags the sand over the face of the hills and "polishes the surface of the flints to a deep brown yellow that reflects the sun's rays, shining as though the stones were wet with dew."



ESBEITA RESERVOIR.

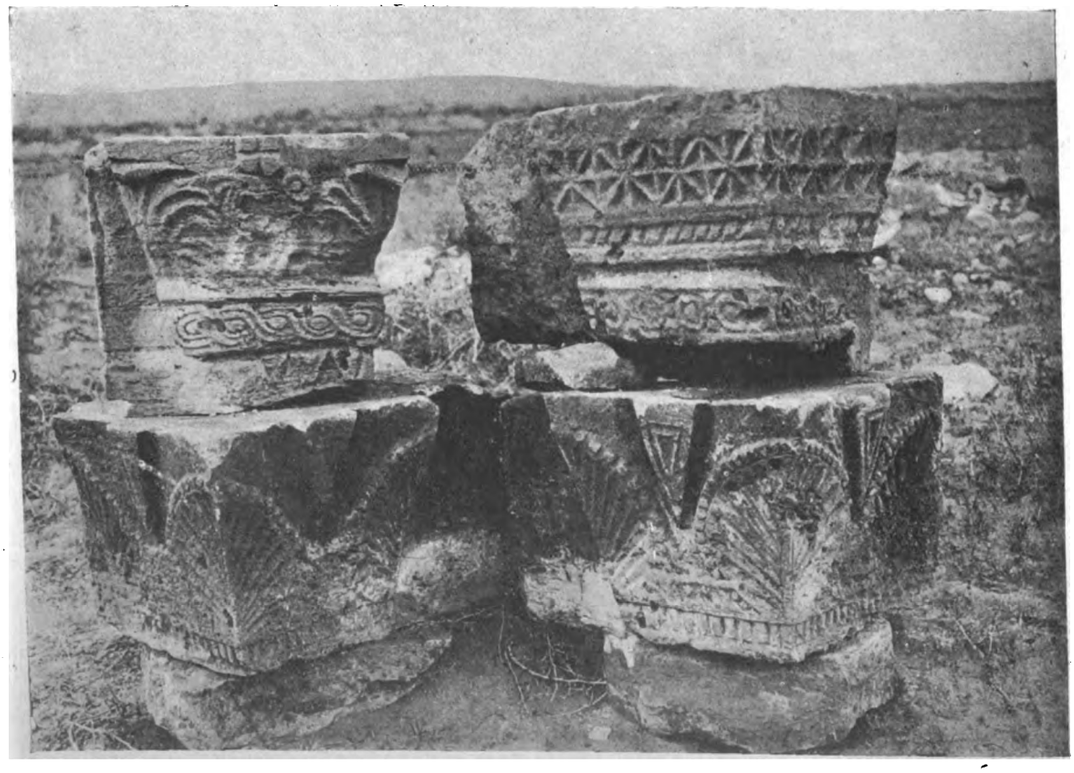
Hitherto explorers have returned with wonderful tales of the wealth of evidence of the Stone Age that the Southern Desert affords. Lord Kitchener alone thought that some of the cairns must be of comparatively recent and Arab origin. The result of the present expedition is to disprove almost beyond a doubt the existence of a Stone Age for Sinai. The authors say: "Now we have searched for stone implements over the whole face of the country and have found very few. We brought away the four or five we found, and also a representative collection of flints so chipped that they might well be mistaken for results of human industry, while, in fact, they were found in circumstances which made any but a natural origin ludicrous. The land is a land of flints: on all hill slopes the exposed edges of the limestone have been eaten away by the wind and the flints of the alternate layers have slipped forward until the slopes are red with them. The nodules in these strata are usually cracked into numberless pieces that still cling together; others have been splintered and scattered before the stone formed around them

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ESBEITA RESERVOIR.

on every yard of ground, and even out of the broken nodules that still hold together in their matrices one can pick up what might well pass as worked flints. . . . Were these genuine a little patience only would be required to collect from any one hillside such an array of primitive weapons as would sink a battleship. . . . Of the four or five real stone implements which we found, one came from Wady Ain Guderat near the threshing floor and all the others from Tell el Seram, a conspicuous natural hill in the middle of a wady south of Auja. We have no means of dating the Guderat flint, but those from Tell el Seram were found in and about the drift sand which filled stone hut ruins on the hill top, together with quantities of broken pottery of the Byzantine period. Everything points to the potsherds and flints being contemporary. The peasants of the Byzantine age were presumably as resourceful as those of to-day, and to-day throughout all Syria flint instruments are freely used. The teeth of the chaff-cutting instruments are always small pointed flakes of flint properly struck from a core. Oval 'scrapers' are used by shepherds' boys to shear the sheep, ousting in many cases the iron shears to which European commerce gave a brief vogue, and straight heavy



BYZANTINE CAPITALS.—BEERSHEBA.

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DARB EL SHUR BELOW JEBEL MUSHRAG, WHERE IT TURNS WEST FOR EGYPT.

knives, often a foot or more in length, are made in any emergency for hacking to pieces a dead animal. In all cases the implement is used upon one occasion and then thrown away. To date such castaways is difficult, for the brown patina of Sinai takes only a few years to produce; flints lying on modern Arab graves are a beautiful brown on the exposed side and quite white underneath. Any man at any time may knap and use a flint, especially when there is such a profusion of raw material, and one cannot from the casual product of his industry argue a Stone Age in the exclusive sense of the term. In our opinion all flint evidence tends to show that man had emerged from the historic Stone Age long before he tried to live in the Negeb."

However, of the ring graves and cairns, of which there are great numbers, situated usually upon rising ground and on the tops of the most prominent hills, some few may date back as far as the middle of the second millennium. "From that date to the present time such monuments have been erected by the nomad population of the country, and of those now existing few are older than the Byzantine period, and the vast majority are comparatively modern. Believing these conclusions to be correct, we must none the less put in a word of caution regarding them. These structures conform to a tradition, as will be shown later, singularly consistent. Their workmanship is, *ex hypothesi*, primitive in character, and their material is necessarily identical at all periods. Even with careful examination it is generally difficult, and often impossible, to fix the approximate date of any one cairn."

Some early pottery remains were found on the site of a very ancient watch tower situated on a hill not far distant from Khalsa; the pottery belonged to the second Semitic period (1800-1400 B.C.), and proved that the early blockhouse had probably been erected to guard the road "perhaps at the time of the Patriarchs, or perhaps during the Red Sea adventures of Jewish kings, Solomon or Jehosaphat."

At Abda, the author writes: "I discovered under the ruins of the monastery the remains of a great Nabatean temple dedicated perhaps to the hero Obodas, whose tomb was at Eboda."

Fragments of Greek pottery of the third and early second century B.C. were also found in the rubbish of ancient houses that had been levelled and built over again in Byzantine times.

The rest of the book, which is a fairly large volume, deals in detail with the wonderful Byzantine remains scattered over the country which have all been carefully measured and planned; indeed, the work is profusely mapped and planned from cover to cover, with, in addition, a collection of quite beautiful photographs and detail drawings.

WIND STRESSES IN THE STEEL FRAMES OF OFFICE BUILDINGS.*

I. *Introduction.*

Preliminary.—The increase in the price of land in large cities has made it necessary to build high buildings in order to get a large rentable floor space on a small parcel of land. The type of building generally used is known as the steel-skeleton building. In this type of building the live and dead loads, including the weight of the walls, are carried by a system of beams and girders to columns and are carried by the columns to the footings.

In high buildings the horizontal shear due to the wind load is very large; and, since it is usually impracticable to put diagonal braces between the columns, it is customary to make the steel frame rigid enough to resist the horizontal shear by virtue of the stiffness of the columns and girders. The exact determination of the stresses in a steel frame due to a horizontal shear is one of the problems of structural engineering which remains to be solved. While the writers realise that the method of determining these stresses presented in this bulletin is based upon assumptions which are not exactly true, they believe that the method is more accurate than the methods ordinarily used.

II. *Present methods of Calculating Wind Stresses in Office Buildings.*

Classification of Methods.—Methods of calculating wind stresses in the steel frames of office buildings may be divided into two classes—viz.: (1) those used in the actual

* **Extracts from Bulletin No. 80 of the Engineering Experiment Station of the University of Illinois, entitled "Wind Stresses in the Steel Frames of Office Buildings." By W. M. Wilson and G. A. Maney.**

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design, and (2) those which have resulted from an effort to make an exact analysis of the stresses. In the methods of the first class, accuracy has been sacrificed to shorten and simplify the calculations. In the methods of the second class, the aim has been to make an exact analysis rather than an analysis that can be used in the actual design of a building.

For the sake of convenience in reference, methods of the first class are designated as *approximate methods*, and those of the second class are designated as *exact methods*.

Approximate Methods.—(*a*) Fleming's Methods. Mr. R. Fleming, in an article in *Engineering News*, describes three methods which are in current use. These methods are designated as methods I., II., and III. The three methods, as applied to a building in which all columns of a storey have the same section, are based upon the following assumptions:—

Assumptions in Method I.

1. A bent of a frame acts as a cantilever.
2. The point of contra-flexure of each column is at mid-height of the storey.
3. The point of contra-flexure of each girder is at its mid-length.
4. The direct stress in a column is directly proportional to the distance from the column to the neutral axis of the bent.

Assumptions in Method II.

1. A bent of a frame acts as a series of portals.
2. The point of contra-flexure of each column is at mid-height of the storey.
3. The shear is the same on all columns of a storey.
4. Each pair of adjacent columns of a bent acts as a portal, and each interior column is a member of two adjacent portals. The direct stress in an interior column, when the column is considered as a member of the portal on one side, is of opposite sign from the direct stress in the same column when considered as a member of the portal on the opposite side and the resultant direct stress is equal to zero.

Assumptions in Method III.

1. A bent of a frame acts as a continuous portal.
2. The point of contra-flexure of each column is at mid-height of the storey.
3. The direct stress in a column is directly proportional to the distance from the column to the neutral axis of the bent.
4. The shear is the same on all columns of a storey.

(*b*) Smith's Methods. Professor Albert Smith, in a paper before the Western Society of Engineers, describes a method which he has used in his classes in structural engineering at Purdue University. This method is here designated as Method IV.

Assumptions in Method IV.

1. The point of contra-flexure of each column is at mid-height of the storey.
2. The point of contra-flexure of each girder is at its mid-length.
3. The shears on the internal columns are equal and the shear on each external column is equal to one-half of the shear on an interior column.

If all of the assumptions of any of these methods are accepted, the stresses in a frame may be determined by applying the fundamental equations of static equilibrium. It is apparent from the assumptions that the results obtained by these methods are radically different.

Exact Methods.—(*a*) Melick's Method. Dr. Cyrus A. Melick used a method which takes into account the form of the elastic curves and the deflections and changes in length of the members. The method is so long that, when applied to a building only four storeys high, the amount of work required is almost prohibitive. To apply it to a building twenty storeys high would be impracticable if not, in fact, impossible.

(*b*) Jonson's Method. Mr. Ernest F. Jonson suggested a method which takes into account the deflections of the columns and the changes in the slopes of the tangents to the elastic curves of the columns and girders at the points where they intersect.

If the method which he suggests were used, it would give the stresses with a fair degree of accuracy; but his method involves so many unknowns that its use would not be practicable in the actual design of buildings.

(*c*) Method of Least Work. Professor Albert Smith has determined the wind stresses in symmetrical bents having two, three, and four spans by the method of least work. This method is exact, but, of course, is extremely long.

III. *Outline of the Proposed Analysis.*

Outline of the Method.—In making an analysis of the stresses, the writers made certain assumptions and applied certain fundamental principles of mechanics and obtained equations from which the stresses in a frame can be determined. The assumptions which have been made are stated in Section IV., and the derivation of the equations is given in Sections V. and VI.

It can be proven that the moment at an end of a member of a frame is a function of the changes in the slopes of the tangents to the elastic curve of the member at its ends and of the deflection of one end of the member relative to the other end.

In the strained position, all the columns and girders which intersect at one point have been subjected to the same change in slope (see assumption 1, Section IV.); the vertical deflections of the ends of all girders are equal to zero; and the horizontal deflections of the tops of all columns of a storey are equal (see assumption 2, Section IV.).

Consider any storey of a bent. Take the point of intersection of the neutral axes of a column and a girder as a free body. It is in equilibrium under the action of the moments at the extremities of the columns and girders which intersect at the point. Each of the moments may be expressed in terms of the changes in the slopes of the extremities of the member, and the deflection of one end of the member relative to the other. A moment equation can therefore be written for each point where the columns and girders intersect, and the only unknown quantities will be the changes in the slopes at the extremities of the columns and the horizontal deflections of the columns in a storey.

If all the columns of a storey be taken together as a free body, the sum of the moments at the two extremities of all the columns will be balanced by a couple whose moment is equal to the total shear of the storey multiplied by the storey height. The shear and the height of the storey are known, and the moments in the columns can be expressed in terms of the slopes and the deflections at their extremities the same as in the previous equations. It is therefore possible to write as many equations for each storey as there are columns in the storey, plus one. As the only unknown quantities in these equations are the changes in the slopes at the extremities of the columns and the deflection in a storey common to all columns, there are as many equations per storey as there are unknowns. By solving these equations the slopes and the deflections can be determined. Knowing the slopes and the deflections, the moments can be computed.

The product of the shear on a member and the length of the member is equal to the algebraic sum of the moments at the extremities of the member. Since the moments and the length of the member are known, the shear can be computed.

With the shears in the girders known, the direct stress in any column can be determined by taking the column as a free body and equating the sum of the vertical forces to zero.

The direct stress in a girder may be determined in a similar manner.

The method just described is based upon the proposition in mechanics used by Mr. Jonson, but the method which the writers have developed differs from the one used by him in that the changes in the slopes and the deflections have been used as the unknown quantities instead of the direct stresses and the moments. Four members, two columns, and two girders intersect in a point. Each member is subjected to a different direct stress and a different moment, whereas all of the members are subjected to the same change in slope, and all of the columns in a storey are subjected to the same deflection. It is therefore apparent that there are fewer unknown slopes and deflections than moments and direct stresses. The large reduction in the number of unknowns very much simplifies the solution of the equations.

IV. *Assumptions upon which the Analysis is Based.*

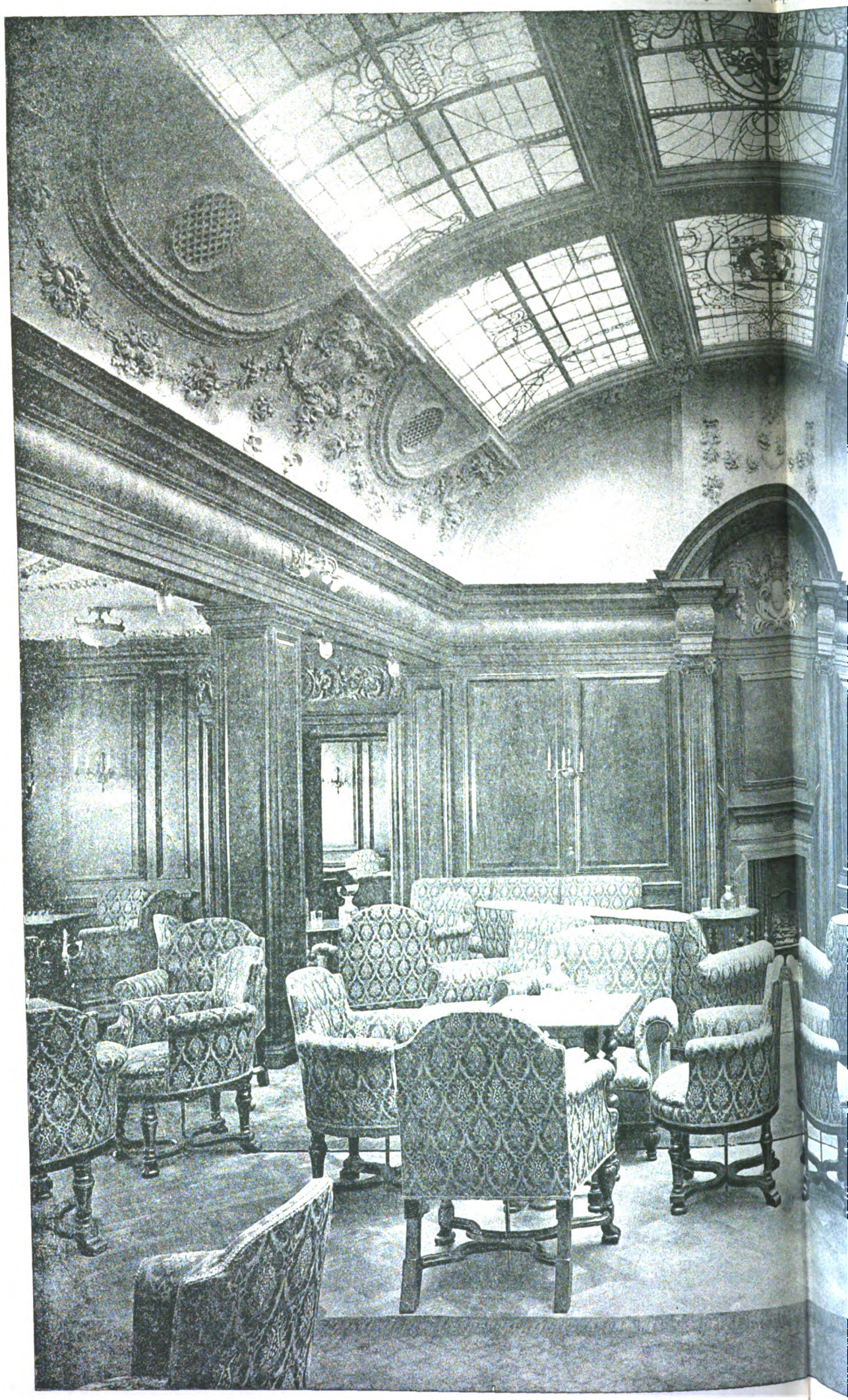
Statement of Assumptions.—The proposed analysis is based upon the following assumptions:—

1. The connections between the columns and girders are perfectly rigid.
2. The change in the length of a member due to the direct stress is equal to zero.
3. The length of a girder is the distance between the neutral axes of the columns which it connects and the length

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S.S. "LUSITANIA": FIRST CLASS SMO

By JAMES MILLER, A.R.I.B.A., F.R.I.B.A., Arch

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Sept. 24th 1915.



CLASS SMOKING ROOM.

F.R.I.B.A., Architect.

"INK-PHOTO" SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

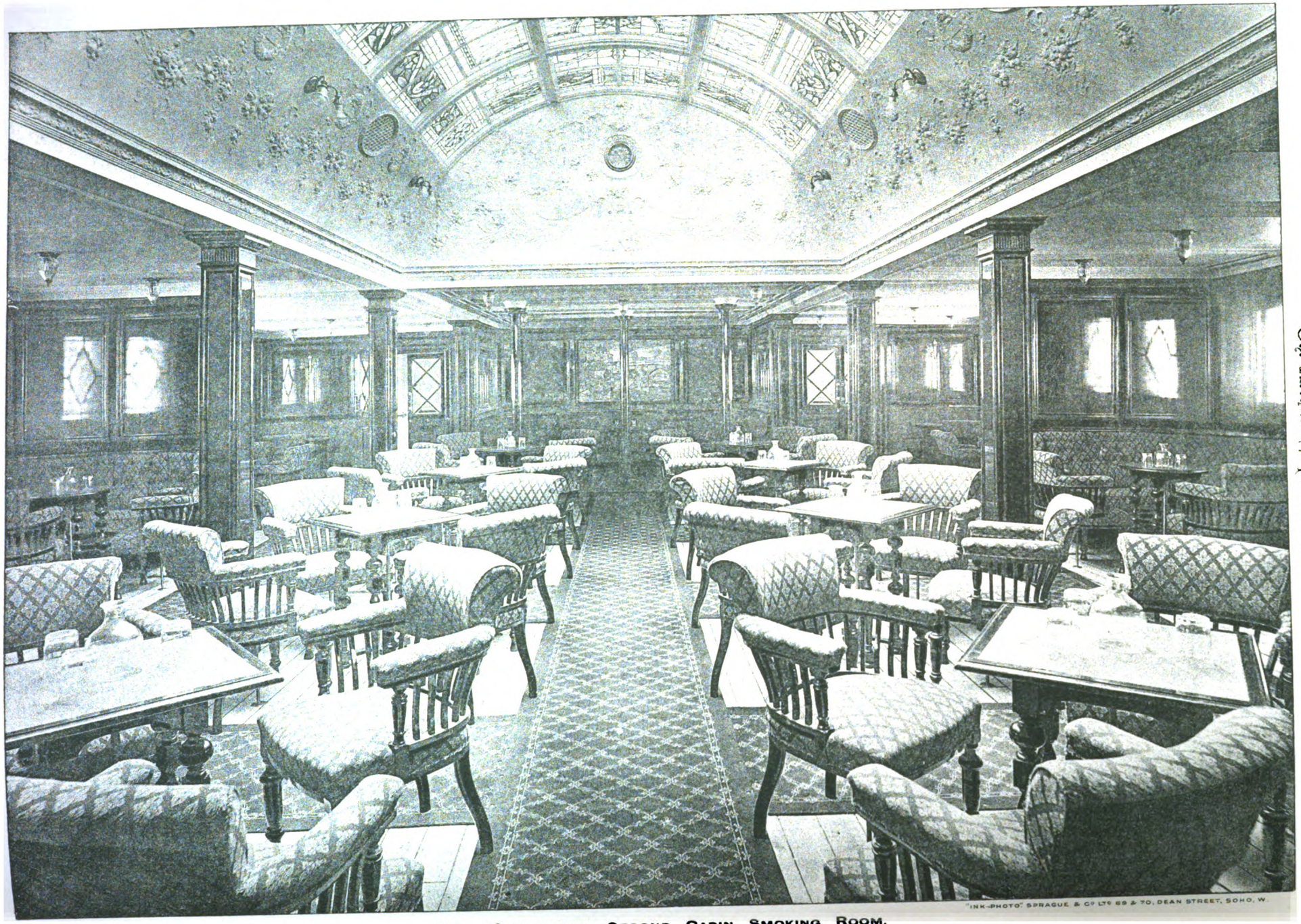
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S.S. "LUSITANIA": SECOND CABIN SMOKING ROOM.

By JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.

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S.S. "LUSITANIA": FIRST-CLASS LOUNGE

Mr. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.

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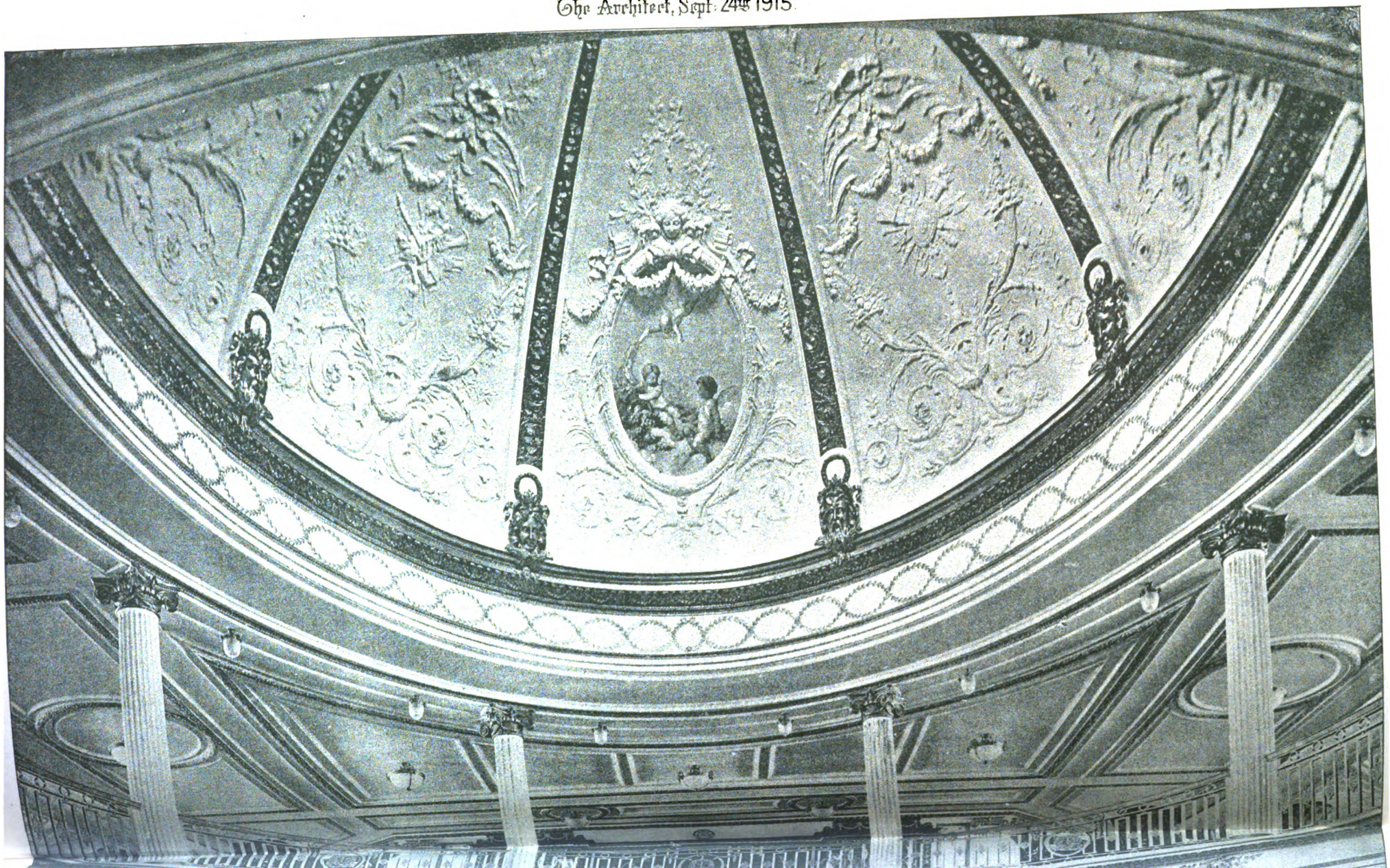
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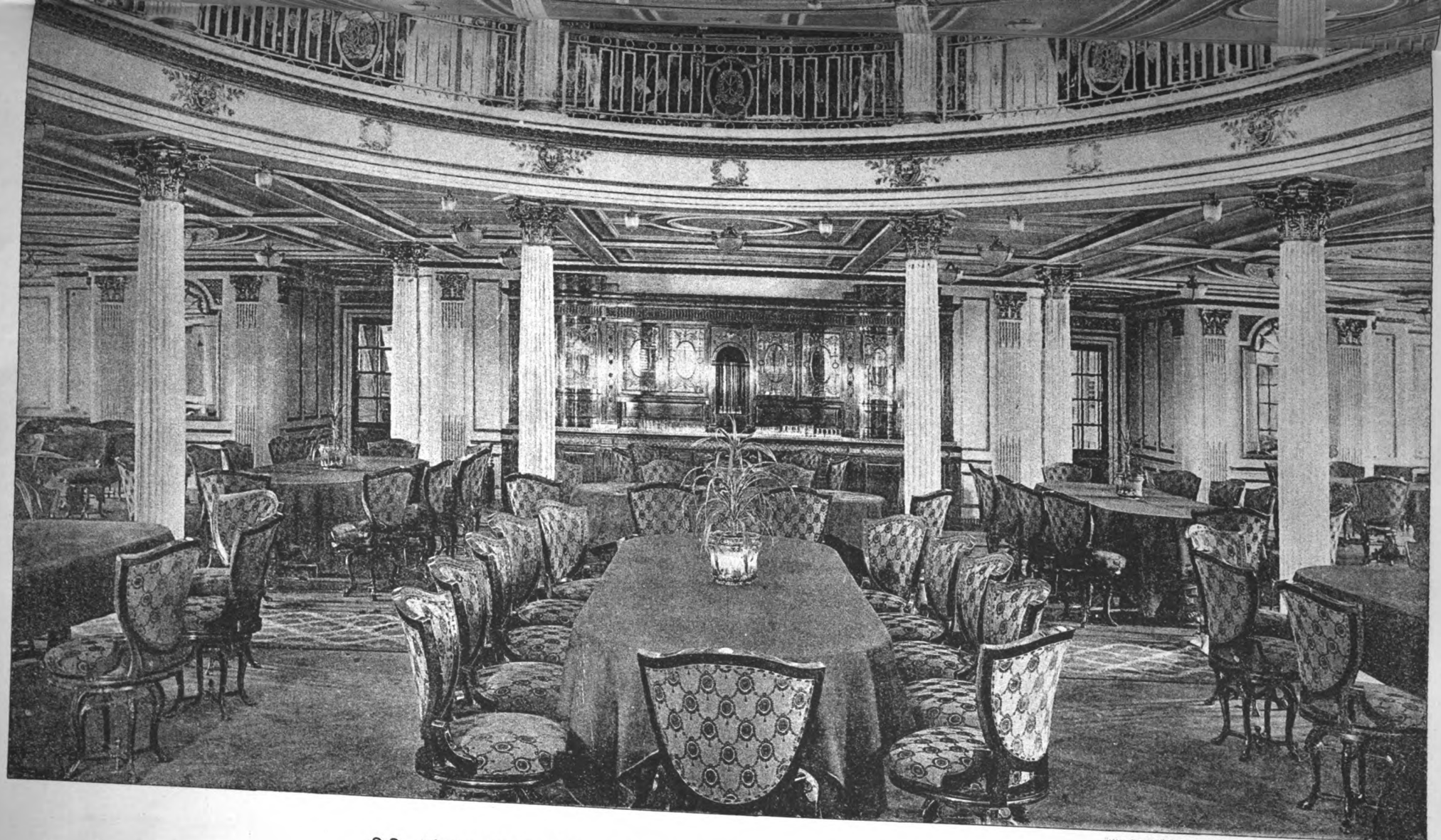
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S.S. "LUSITANIA": FIRST-CLASS DINING SALOON, SHOWING CEILING DETAIL.

Mr. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.

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of a column is the distance between the neutral axes of the girders which it connects.

4. The deflection of a member due to the internal shearing stresses is equal to zero.

5. The wind load is resisted entirely by the steel frame.

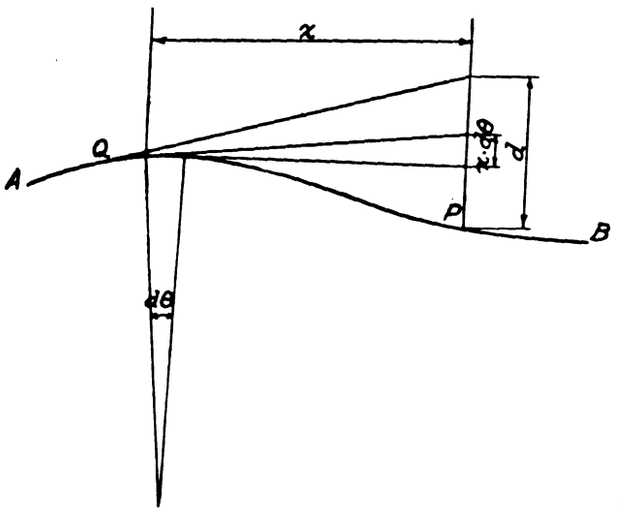
These assumptions will be discussed in Section XI.

V. *Fundamental Equation.*

Fundamental Proposition.—The fundamental equation used in this analysis is based upon the following proposition:—

When a member is subjected to flexure, the deflection of any point in the neutral axis from the tangent to the elastic curve at any other point is equal to the moment of the area of the $\frac{M}{EI}$ diagram for the portion of the member between the two points, about the point where the deflection is measured.

Proof of the Proposition.—The line AB represents the neutral axis of a member subjected to flexure. The deflection of the member is very much exaggerated in the figure. The actual deflection is so small that the length of the curve may be considered equal to its horizontal projection. It is required to prove that the deflection of any point P from the tangent to the line AB at any other point Q is equal to $\int_Q^P \frac{M}{EI}\,dx\cdot x$.



Extend the tangents at the extremities of an element of the curve until they intersect the vertical line through P. The intercept on this vertical line between two consecutive tangents is equal to $x\cdot d\theta$. The total deflection of P from the tangent at Q is equal to the algebraic sum of these intercepts for the elements of the elastic curve between the points Q and P. That is, $y=\int_Q^P x\,d\theta$. The equation of the elastic curve may be written $\frac{d\theta}{dx}=\frac{M}{EI}$. Substituting the value of $d\theta$ from this equation in the expression for y, gives $y=\int_Q^P \frac{M}{EI}\,dx\cdot x$. The quantity $\frac{M}{EI}\,dx$ can be considered as an elementary area of the $\frac{M}{EI}$ diagram. The quantity $\int_Q \frac{M}{EI}\,dx\cdot x$ can therefore be considered as the moment of the $\frac{M}{EI}$ diagram about the point P.

[The remainder of Section V. and Sections VI. and VII. are too lengthy for reproduction in our columns, and those readers interested in the subject should refer to the original.—ED.]

VIII. *Approximate Methods.*

Nomenclature of Methods.—The method used in Section VII. to determine the stresses in a symmetrical three-span twenty-storey bent can be used in the actual design of a building, but a shorter method is desirable. The writers propose an approximate method which is much shorter than the method used in Section VII., and which they believe is sufficiently accurate to be used in the actual design of buildings. For the sake of convenience in reference, this approximate method will be designated as the "Proposed Approximate Method" as distinguished from the method used in Section VII., which will be designated as the "Slope-deflection Method." The slope-deflection method can be modified to advantage under certain special conditions. Such modifications will be designated as "Modifications of the Slope-deflection Method."

Proposed Approximate Method.—The proposed approximate method is based upon the following assumptions in addition to those used in the slope-deflection method:—

1. The changes in the slope at the top of a column in the storey above and in the storey below the one in which the stresses are to be determined are equal to the change in the slope at the top of the corresponding column in the latter storey.

2. The ratio of the deflection to the length of the columns in the storey above the one in which the stresses are to be determined is equal to the ratio of the deflection to the length of the columns in the latter storey.

[For remainder of Section VIII. and for Section IX., Comparison of the Approximate Methods with the Slope-deflection Method; Section X., Test of a Celluloid Model of a Bent; Section XI., Discussion of the Assumptions, refer to original Bulletin.—ED.]

XII. *Conclusions.*

As a result of the investigation described in this bulletin, the following conclusions can be made relative to the methods used to determine the wind stresses in the steel frames of office buildings.

(*a*) Methods II. and III. of Section II. are so inaccurate that they should never be used; I. and IV. are quite accurate in some cases, but they may give results which are seriously in error.

(*b*) The method presented in Sections VI. and VII., and designated as the slope-deflection method, contains no approximations except those in the assumptions. It has been shown that the inaccuracies in the assumptions do not materially affect the results. Therefore the method is very accurate.

(*c*) While the slope-deflection method is long, it could be used in the actual design of a building; but it has its greatest value as a standard by means of which the accuracy of the approximate methods may be determined.

(*d*) The proposed approximate method is short; and, except at points where there are very large changes in the size of the members, gives results which are accurate enough to be used in the actual design of a building.

DAMAGE TO VEGETATION BY SMOKE AND VAPOURS FROM FACTORIES.*

VERY many works and factories emit smoke so abundantly as to cause harm to vegetation. Some of them also emit gases which are noxious to plants, and so blight the neighbouring country.

When the fumes are very pronounced the destructive effects are clearly seen, as, for example, near those works which pour out large quantities of sulphur dioxide. In the immediate neighbourhood of such works the plants exposed to the frequent action of the gas have their leaves scorched, while trees lose their leaves and show many dead branches, the action of the gas gradually killing them entirely.

Though these are the most acute symptoms, there are many others far less pronounced, every intermediate condition being observable between plants which exhibit only a slightly checked development and those which die from evident poisoning. Factory smoke and the damage it produces raise frequent complaints from neighbouring landowners and farmers who are, or believe themselves to be, injured, and consequently the courts and experts have to decide the following questions: (1) Has the land of such a person suffered damage, and if so, to what extent? (2) Is the damage wholly or in part the result of the smoke from the factories complained of? The solution of these questions necessitates a comparative study of the general conditions of cultivation and an examination of the actual smoke deposits both on the damaged lands near the works which emit the noxious vapours and districts various distances away.

* A note submitted to the Manchester meeting of the British Association for the Advancement of Science. By Professor Fernand Ranwez, University of Louvain.

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If perhaps the scorched leaves exhibit some characteristic aspect, there may exist some cause other than mere smoke capable of producing such damage.

The damage is often limited to diminished growth and spread of vegetation, or to a slow withering, and many causes besides smoke produce these effects, such, for example, as faulty cultivation and sour or poor soil.

Vapours often leave their imprint, as for example, sulphur dioxide (one of the commonest destructive agents), which can be recognised in plants in the form of sulphate. But plants usually contain sulphates in very varying proportion even without the direct action of the gas, so it follows that the discovery of more or less characteristic forms of damage, the observation of the diminution of the spread and growth of plants, or their destruction, the presence of an increased quantity of sulphates or other compounds which could have arisen from vapours do not sufficiently prove the destructive effects of gas when they are considered by themselves alone without all contingent circumstances. The observations only yield proof when they are contrasted with similar ones taken with due care on plants of neighbouring districts. To make such comparative experiments one must describe round the offending factory a series of concentric circles of ever-increasing radius and then see (1) whether in the more distant regions the vegetation presents normal features, (2) whether it exhibits abnormalities on approach to the factory, and (3) whether such abnormal features become proportionately more marked as the plants become more exposed to the action of the gas.

In all such observations account must be taken of the general cultural conditions of the compared areas. Mere distance from the point of origin is not, however, the only factor on which the noxious action of such vapours depend, for many other factors come into play, such as the prevalence of wind, humidity of the atmosphere, &c.

FLOODS IN SALISBURY CATHEDRAL.

IN the "Wiltshire Archæological Magazine" there appears an interesting account by Sub-Dean Wordsworth of the flood which invaded Salisbury Cathedral in January last and also of similar occurrences in the past.

Salisbury Cathedral, he says, has been in past generations liable to serious floods. In February 1635 the officiants rode on horseback into the choir to perform divine service. There was a flood again in 1637. In 1675-87 Bishop Ward's scheme for making the Avon navigable from Christchurch to Crane Bridge, under the Act of 1664, was pressed forward, but an attempt to revive the scheme by a fresh Act was thwarted by the Hampshire men in 1698. In 1726 the water in the cathedral rose so rapidly during divine service that a pulpit for preaching was erected in the choir, the water in the body of the church being nearly a foot deep. At this time, in the reign of George I., prayers were read in the choir, and the sermon was (usually) preached in the nave. (W. A. Wheeler, "Sarum Chronology," 1889, i., pp. 19-26.) More recently, about 1824, in the time of George IV., the late Mr. J. Harding remembered the cathedral being more than once flooded with water to the depth of several inches over the nave and the aisles. But he never recollected to have seen it reach the level of the choir, though the water was standing underground a little below the pavement of the S.E. choir transept. Mr. Wheeler mentions that the Close was flooded to the doors of the cathedral on January 17, 1841. On April 25, 1846, hailstones lay two feet deep on the north side of the cathedral for two hours or more, and on November 26, 1852, the water came up in pools in the cathedral and the chapter-house. On the eve of Epiphany in the present year (1915), at 7.45 A.M., every path to the cathedral was flooded, and water was bubbling up in the nave and western transepts, so that, being on duty, I walked through eight inches of water at the west front. In the afternoon the water was higher, and reached a depth of 5 inches to 13 inches on the raised gravel of the Broad Walk from Harnham Gate. The choir was closed for alterations in November 1869, till November 1, 1876. In 1878-9 the nave and aisles were restored, and on May 29, 1879, a diocesan choral festival, very largely attended, was held in the cathedral.

Since that day the choir has been (normally) in constant use, and while I write (after Epiphany 1915) the nave is disused, though gradually drying after the flood. Our little punt, which formerly amused my nephews and nieces on the Palace pond, was taken from St. Nicholas' Hospital on January 4 through Harnham Gate, and Mr. Hammond, our chapter clerk, plied in it on the choristers' meadow and elsewhere on the western side of the Close. Some years ago the punt had disported itself in Bishop Poore's hall within the Palace, and one of the late Bishop's children had a memorable time of enjoyment upon one of the old dining-tables, impersonating Robinson Crusoe on his island, while the punt doubled the parts of "two-canoe" and ship. The Palace is usually the first, and occasionally the only, building to suffer when the springs are rising abnormally; and after it the Wardrobe and South Canonry follow presently. The King's House has suffered great mischief, the wooden blocks of the floor in the drill hall being forced up by the spring of water and mud. The houses S.W. of Harnham Gate, and then the lower rooms in the Deanery and Leadenhall, and the undercroft of the North Canonry, with the cellarage in other parts of the Close, are flooded.

Several of the occupants of De Vaux Place were on the present occasion forced to leave their houses, as was Mr. Pearce, the second verger, with his family. Mrs. Wyndham, at De Vaux House, and the four tenants of St. Nicholas on St. John's Isle or Harnham Bridge, no less than the denizens of Fisherton, have realised the truth of old Leland's words about the Avon, when swollen by snow from North Wilts and the waters of Pewsey Vale, that "Saresbyri and much ground thereabout is playne and lew, and as a pan or receyver of moste parte of the water of Wyleshire," and that it stands "exceding low and cold, and the ryver at rages cam(e) into it" and no mistake! ("Itinerary," i., pp. 259, 268, ed. L. Toulmin Smith, 1907.)

The Avon overflowed the lowest part of St. John's Isle in the month of January 1915, but the ancient Chapel of St. John the Baptist has escaped any visible damage thus far. Here, on the northern bank of St. Nicholas' channel, the twin chapels have suffered no harm, and that of St. Nicholas has been used daily for divine service, although we watched the river tearing away at our boat-house and the water creeping foot by foot over the lawn till it stood in the shallow rain catchpit outside the south door of the chapel, within two inches of the door sill; and the flags in the ante-chapel show darker and broader stains than usual, where carpets had begun to show a trace of dampness. The rooms in this house (the Master's lodging) and hospital have remained high and dry, and whereas in many seasons we feel the want of cellarage, for the convenience of storage in this house, we are now thankful to Mr. Young, the builder, who remodelled our rooms under Mr. Crickmay's direction in 1886. We could not wish for a repetition of the scene witnessed in the eighteenth century on one St. Nicholas' feast, in December, when the river rose in the old kitchen, which formerly stood near what is now my study, and put out the fire at which two cooks from the town were cooking for the community and their invited guests.

The water began to appear in the Palace on the evening of Thursday, December 17, 1914, when the Bishop thought it wiser not to use Bishop Poore's hall for the candidates for ordination, as there was a little water above the concrete floor in the north part of it. Next morning the gardeners had brought large inverted flower-pots to raise the dwarf bookcase above the level of the lower steps by which one descends from the level of the large entrance hall. This expedient served only for a time. When I next visited that part of the Palace early in January the whole ancient hall was like a noble plunge-bath, Robinson Crusoe's island was itself submerged, and the water 25½ inches deep, overflowing through the open door in a rivulet running into the scullery passage. For ten days the Cathedral Library, over the eastern cloister, could not be heated because the stoke-hole was flooded, and the pump and hose were fully occupied in pumping from two to four inches of water from the aisles and nave into the cloisters, and for several successive days first through the cloister door and then through a window (from which some of the glass had to be taken out) into the N.E. channel of the Close. The water rose again to a height of 2 feet 8 inches in the stoke-hole, already mentioned, near the cloister and chapter-house, in February 1915; but it has been pumped out a second time, and by March 4 the fire was once more burning merrily. The cathedral organ (one of the greatest sufferers from the recent floods) was in part used again on Sunday, February 28, and the whole of it on March 4. The removal of the chairs from the nave has shown the true architectural proportions of the building as seen in eighteenth-century engravings, a fact which was not lost to some artistic eyes.

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and we may hope that sketches were satisfactorily completed, to show the arcades more nearly as Elias de Derham planned them, than they have been seen for several generations. James Biddlecombe's drawing of 1754, engraved for Peter Hall's "Picturesque Memorials of Salisbury," 1834, plate vi., shows the nave devoid of seats; and the font, near the west end. I wonder whether this place at the west end of the cathedral nave between the tombs or effigy of the younger W. Longespe and the so-called "Boy Bishop" to the north and the tombs or coffin slabs of Bishops Roger and Josceline de Bohun (brought from Old Sarum) on the south, was the site of the mediæval "fontes" also. The printed Sarum "Processionale" rubric (1502, &c.) directs that the Easter fire was to be blessed on Easter Even "at the column on the south side of the Font." The illustrated editions, more particularly those of 1517-58, show the little fire blazing, in a shallow brazier with a foot, to the right hand of the celebrating priest, and the acolyte with holy water and the thurifer next it, as shown in "Salisbury Ceremonies" (Cambridge, 1901), p. 82.

THE LAKE VILLAGES NEAR GLASTONBURY.

AT the recent Manchester meeting of the British Association a report was presented by the Committee, consisting of Professor W. Boyd Dawkins (Chairman), Mr. Willoughby Gardner (Secretary), Professor W. Ridgeway, Sir Arthur J. Evans, Sir C. Hercules Read, Mr. H. Balfour, and Mr. A. Bulleid, appointed to investigate the Lake Villages in the neighbourhood of Glastonbury in connection with a Committee of the Somersetshire Archæological and Natural History Society. (Drawn up by Mr. Arthur Bulleid and Mr. H. St. George Gray, the directors of the excavations.)

The second part of the fifth season's exploration of the Meare Lake Village by the Somersetshire Archæological and Natural History Society began on September 21, 1914, and continued until October 3. The ground excavated was situated in the same field and was continuous with the work of previous years. The entire area occupied by the dwelling-sites in Field IV. has now been explored, with the exception of the ground covered by the shed and a space of three feet around it. When work is resumed it is proposed to move the shed into Field V. and complete Field IV. at the same time as the exploration of Field V. is proceeding.

The digging of last Autumn included the examination of portions of Mounds IX. and XII., and of the whole of Mounds XVI. and XX. Nothing of marked importance structurally was found in or about Mounds XII., XVI., and XX., but the undermentioned points of interest were discovered in Mound IX. The upper part of the mound was denuded, and when looked at in section the clay floors appeared arranged in layers, rainbow-fashion. The summit of the arch down to the depth of the sixth floor was missing and looked as if it had been washed or cut across horizontally before the flood-soil had been deposited. This mound contained, amongst other things, a very remarkable and complete series of superimposed hearths, nineteen in all, and a nearly complete circle of flat split oak wall-posts accompanied by wattle-work.

During the examination sectional and other plans, as well as photographs, were made of the most interesting and important features, as is customary.

In May the excavation of Dwelling-mounds XVIII. and XIX. was completed, but nothing of structural importance was noted.

THE RELICS.

Amber.—About one-quarter of a large orange-coloured clouded amber ring which, when perfect, was 40 mm. in diameter.

Bone Objects.—Perhaps the most interesting objects of bone found in the last excavations at Meare are the three pieces of worked scapulæ. The heads and longitudinal spines have been cut down considerably, and little remains of the flat parts of the bone which have been intentionally removed. Two of these objects are perforated at the head. All of them are ornamented on the upper surfaces, (*a*) with two long rows of large dots and circles; (*b*) with transverse incised lines; and (*c*) with rows of circular depressions 3 mm. in diameter. A scapula of sheep, perforated at the head, was also found.

Among the other specimens is a long needle with a lop-sided eye countersunk on one side; a smooth and tooled rib-bone rounded off at one end, and having two perforations at the other; another perforated rib-bone; a polished metacarpus of ox; an awl in fine condition; a perforated radius of sheep; and some miscellaneous and, for the most part, incomplete implements connected with weaving.

Crucibles.—Two fragments of the usual type.

Baked Clay.—Ball of clay with a hole that does not penetrate through. A few sling bullets and fragments of loom-weights.

White metal.—A wheel-shaped disc or amulet of white metal;* external diameter 25.7 mm.; weight 53 grains. This open-worked object consists of a ring, or wheel, with four curved spokes (each pair forming an ogee curve); it is ribbed all over on both sides. Déchelette in "Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine," 1914, figures very similar rings (rouelles) having diameters of from 25 to 50 mm. They are common in the La Tène stations; some of the "wheels" have straight spokes (sometimes only four in number); and some of them are ornamented round the outer edge by cogged notches. They have been found in Marne and Bohemia attached to fibulæ—either fixed to the back of the brooch by means of a small chain, or merely looped on to the bow. He has figured similar pendants belonging to the bronze age.

Bronze.—The two fibulæ found last September are of considerable interest, one being of the earliest type, the other of the latest type found in the Lake Villages.

Fibula of La Tène I. type†—one of some forty examples of this type so far recorded as having been found in Britain. The specimen is 54·5 mm. in length from the head of the bow to the nose, but the brooch is not complete and the coil is broken. It resembles in outline the longest brooch of this type (86 mm.) found in Britain—viz., that discovered on Ham Hill, Somerset, in 1912 (Taunton Museum). The Meare specimen is of a somewhat attenuated form, the vertical depth from the top of the bow to the bottom of the catch plate being only 13 mm. The bow is ornamented with three parallel grooves arranged lengthwise, which terminates in two slight transverse incisions at the catch-end. The tip of the retroflected end almost touches the front of the bow, at a point where there is a decided hollow in the bow. The up-turned end has two flat, circular enlargements; all the other parts of the catch-plate and nose are ornamented with transverse ribbing. This brooch was found on the W. margin of the superimposed hearths in Mound IX., depth 3·5 feet below the surface.

Fibula of the first century A.D., showing a blending of Late-Celtic with Roman art, and having a hinge-pin; length 47 mm. The tapering bow and nose make an ogee curve. As in EE 9, two transverse grooves occur at the point where, in brooches of earlier type, the retroflected end was attached to the bow. This specimen was found in Mound XII., on the top floor, 1·2 feet below the surface. A similar fibula was found on Ham Hill (Taunton Museum).

Last September Meare also produced an ornamented finger-ring of flat bronze; half a wire ring—not for finger; and a circular ring, external diameter 49 mm., the ends connected by means of a rivet (rivet missing, hole remaining). The greater part of this solid ring is "lobed" the whole way round the surfaces of the material. It belongs, perhaps, to the earliest La Tène period.

Iron.—The iron objects found this season were few, and included the greater part of a sickle, pieces of rings, and a large ferrule of flat iron.

Lead and Tin.—A rough leaden ring, and a lump of galena.

Glass Beads.—Fifty beads have already been found at Meare—twice as many as were collected in the whole of the excavations at Glastonbury. Twelve were found last September, and they include a new type in black paste, ornamented with a row of large dots and circles in relief (the circles overlap one another). There are four small ring-beads of yellow paste, a blue bead, a globular blue bead inlaid with yellow spirals, three of clear glass with yellow spirals, and two of clear glass with yellow wave-pattern. One of the latter is drilled transversely from one side, but this hole does not meet the main hole of the bead. This new feature occurs also in the blue and yellow bead, the sides of which have two fairly deep circular depressions and traces of a third just begun.

* At first it was thought to be of silver, but has since been tested. This is the only specimen of white metal found in the Lake Villages.

† Two brooches of La Tène II. type were found at Glastonbury, but no specimen of La Tène I.

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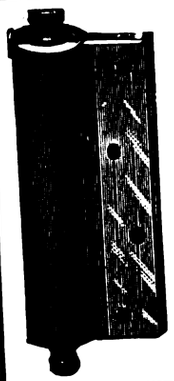
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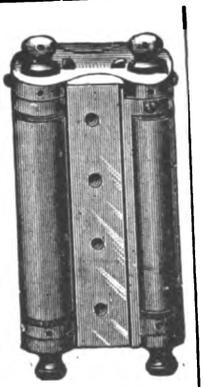
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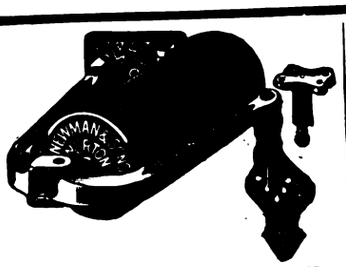
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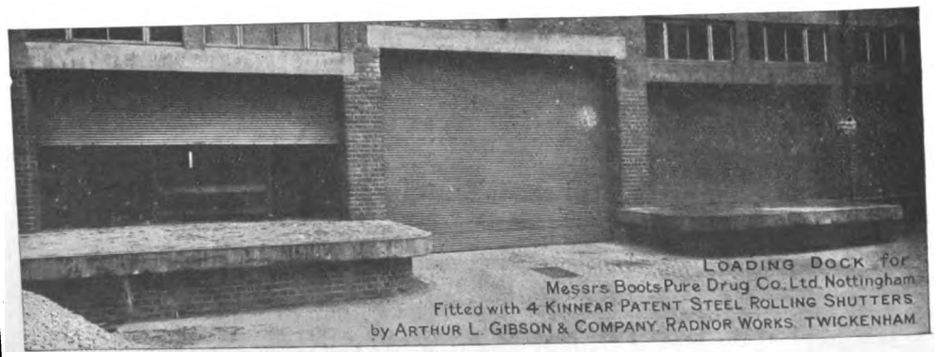
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Kimmeridge Shales.—Parts of eleven armlets, the material varying in thickness from 6 mm. to 19·5 mm.

Weaving-combs of Antler.—The ten combs found last September bring the Meare collection up to fifty-six. The new specimens are for the most part in good condition, and three of them are perfect. Only five examples of what was then regarded as a rare type—viz., Type 2, those with oval or rounded enlargements at the handle-end—were found at Glastonbury. Of the ten specimens now found at Meare, no less than seven are of this type (the longest measuring 7 inches in length); two of these are perforated through the enlargement. One is of Type 1, another of Type 4; the remaining one is broken at the handle-end. One of those of Type 2 has the enlargement ornamented with two large concentric circles with a central dot; both margins of the handle are engraved with a row of eight large semicircles, each of which encloses the usual dot.

Other Antler.—We have only nine specimens to record from the recent excavations, and these include two unworked tines of roe-deer. Perhaps the most interesting object is the polished red-deer tine into which an iron peg (projecting 5·5 mm.) has been driven 2⅝ inches from the tip of the tine, causing the tine to split for a distance of 1⅞ inch. An attempt has been made to drive the peg in nearer the tip. A neat piece of work is half an antler ring (external diameter 34 mm.) carved into a twisted rope-pattern design.

Spindle-whorls.—Meare has already produced seventy-nine spindle-whorls, of which fourteen were found last September. The most interesting is the grey stone specimen grooved round the sides and having radiating notches at the mouth of the hole on both surfaces (similar to a whorl from Glastonbury). The others are on the whole rather rude specimens, and were formed from lias and other stone and baked clay.

Flint.—Two well-worked scrapers, and part of a small chipped and partly polished celt. Flint was also represented by a large number of flakes, a few burnt flakes and scrapers, and two nodules (one of chert).

Querns.—Sixty-four saddle and rotary querns have now been found at Meare, besides several fragments unnumbered. Fifteen of the specimens were found in September 1914, all, or nearly all of them, saddle querns. The rotary quern is comparatively rare at Meare.

Other Stone Objects.—Of the fifty-three whetstones found in Mound IX. last year, one showed much wear from sharpening; another piece was deeply grooved by tools in two places; and the butt-end of a shapely specimen was perforated for suspension, and the hole countersunk very neatly on both surfaces. Some of the hammer-stones discovered were well shaped. Two hundred and ninety-three slingstones were found scattered over a small area in Mound IX.; the same dwelling produced 111 sling-stones in addition. Several small discoidal stones—perhaps intended for the manufacture of spindle-whorls—were found; also a few small smooth pebbles.

Pottery.—Late-Celtic pottery has been no less plentiful than in former seasons, and includes a large number of ornamented fragments. Little of it has, however, been repaired or classified yet. A small unornamented pot, almost perfect, was found in Mound IX., and from the same dwelling we obtained a large black pottery vessel—now restored from many fragments. It is hand-made, and in its original condition it must have been far from symmetrical. It is 12¼ inches in height. At an inch and a half below the rim the pot is encircled by a cordon, and below this the ornamentation takes the form of a bold wave-pattern also in relief and covering a width of two inches. The same pattern, not in relief but grooved, occurred at Glastonbury.

Human Remains.—Fragmentary human remains from Meare number only ten; none were found in 1914.

Tusks.—Several boars' tusks were found, including two perforated specimens.

Animal Remains.—Plentiful, including several bird-bones and an otter's skull. Knife-cut and gnawed bones were frequently met with, and in Mound IX. saw-marks were observed on eight horn-cores.

The Committee are desirous that they should be authorised to act for the ensuing year on the part of the British Association, and that a grant of £20 should be made in aid of the exploration so that the work may be resumed as soon as the war is ended. The exploration is mostly paid for by local effort, and will be discontinued during the war.

SLATE PRODUCTION IN THE UNITED STATES

THE quarrying of slate is an important mineral industry closely connected with the building trades. The value of slate produced in the United States in 1914, including slate sold in squares for roofing and as slabs for milling and other uses, was $5,706,787, according to A. T. Coons, of the United States Geological Survey, in the chapter on slate from the report "Mineral Resources, 1914." This was a decrease of over 7 per cent. from the value of $6,175,476 for the output of 1913.

In 1914 the slate operators in general reported the demand for this material as good up to October, when the trade dropped off from 25 to 50 per cent. For the last twelve years the value of the slate output has remained practically stationary, fluctuating slightly with changes in trade and financial conditions. As compared with the output in 1905, ten years ago, which was valued at $5,496,207, the output in 1914, shows an increase in value of only $210,580, or nearly 4 per cent. The largest output ever reported was in 1908, when the value of $6,316,817 was nearly 10 per cent. greater than that of 1914. The average price per square of roofing slate in 1914 was the highest ever recorded—$4.08. This represents an advance of 39 cents in ten years. Pennsylvania, Vermont, Maine, Virginia, New York, Maryland, New Jersey, and Utah, named according to rank of output, were the States producing slate in 1914. Pennsylvania produced over 63 per cent. of the total output and Vermont about 25 per cent.

Nearly 73 per cent. of the value of the slate produced represented roofing slate, which is sold in "squares," each square containing a sufficient number of pieces of slate to cover 100 square feet on the roof. The output of roofing slate in 1914 was 1,019,553 squares, valued at $4,160,832, the average price being $4.08 per square.

Pennsylvania's output represents about 59 per cent. and Vermont's 29 per cent. of the value of the roofing-slate production of the United States. Virginia was the only State whose output showed an increase.

Milling slate, including slate used for blackboards, school slates, electrical work, table tops, and sanitary and other structural work, decreased from $1,714,414 in 1913 to $1,545,955 in 1914. There was an increase in the material sold for blackboards and a decrease in school slates and other mill stock.

Northampton and Lehigh counties, Pa., produced all the blackboard and school slate.

The slate export trade, valued at $139,125 in 1914, is practically at a standstill. In 1898 and 1899 the slate exports were valued at over $1,000,000. These figures were attained at a period of labour troubles in the Welsh slate quarries and most of this slate went to British possessions.

THE STRENGTH OF IRON, STEEL, AND CAST-IRON STRUTS.*

A SERIES of experiments on solid free-ended centrally-loaded struts has been carried out in the Engineering Laboratories of the Manchester University during the last two years. They lead to the following conclusions:—

1. For all the struts tested the collapsing load was in accordance with the values calculated from Euler's formula, except for struts so short that the average stress produced by the theoretical load was above the elastic limit of the material.

2. In the case of the shorter struts the material tested may be divided into two classes.

(*a*) Materials having no appreciable drop of stress at yield (cast iron and bright-rolled steel). For such materials, Southwell's formula—of which Euler's is the particular case for wholly elastic material—gives the collapsing load for all lengths.

(*b*) Materials having a decided drop of stress at yield (mild steel, wrought iron, and high-tensile steel). For such materials Euler's or Southwell's formula applies for all lengths for which the average stress calculated is less than the elastic limit. Southwell's formula applies between the elastic limit and the yield point and for the shortest struts the collapsing load is equal to the yield stress multiplied by the area.

* A note submitted to the Manchester meeting of the British Association for the Advancement of Science. By Andrew Robertson, M.Sc.

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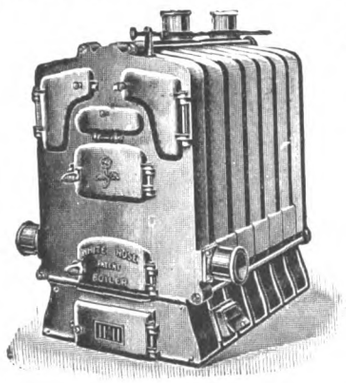
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ENGLAND.

BUCKINGHAMSHIRE.

Aylesbury.—Boiler house: extension, for Condensed Milk Company.

House, Walton Street, for Mr. George Cannon.

CUMBERLAND.

Carlisle.—Proposed thirty-six workmen's houses, Willow Holme and Boustead's Grassing. Mr. Marks, Council surveyor.

DURHAM.

Birtley.—Suggested 500 Council houses.

ESSEX.

Ilford.—Generating Station for the refuse destructor, next Suffolk Road, Seven Kings. Council surveyor.

HAMPSHIRE.

Winchester.—Proposed smallpox hospital.

HERTFORDSHIRE.

Hitchin.—Bakery, Bucklersbury. Messrs. M. & F. O. Foster, architects.

KENT.

Dover.—The "Barley Mow" p.h.: alterations.

LANCASHIRE.

Barrow-in-Furness.—Cinema house, Natal Road, Vickerstown, for Mr. W. Catlin.

Four houses, Clarence and Longreins Roads. Messrs. J. & H. Neal & Son, Ltd., builders, Abbey Road Bridge.

Seven houses, Roose Road, for Mr. S. Barnett.

Blackpool.—Two houses, Clifton Grove, South Shore. Mr. J. Midgley, builder, Osborne Road, South Shore.

House and workshops, Ashburton and Clifford Roads. Messrs. J. Fielding & Sons, builders, Ashburton Road.

Workshop, Peter Street: additions. Messrs. Atherton Brothers, builders, Peter Street.

Nelson.—Holy Saviour's R.C. School, Bankhouse Road. Messrs. W. T. Cunson & Son (of Manchester), architects (£2,500).

St. Anne's-on-Sea.—Pair of villas, Healey Road, for Mr. J. Bell.

Pair of villas and motor garage, King's Road, for Mr. J. Johnson.

Warrington.—Smallpox hospital (£1,800).

Wigan.—The "Golden Lion" p.h., Wallgate: alterations. Messrs. W. C. Ralph & Son, architects, Leaders Buildings, King Street.

NORTHAMPTONSHIRE.

Irthlingborough.—Banking premises, High Street, for the Northants Union Bank.

Factory: extension, for Messrs. Perkins & Bird.

Leather store, for Messrs. Hobbs & Co.

NOTTINGHAMSHIRE.

Nottingham, West.—Proposed public baths.

SHROPSHIRE.

Shrewsbury.—One hundred Council houses, Castle Fields (£19,100). Borough surveyor.

SURREY.

Croydon.—"The Windmill," Beddington: additions, for Messrs. Page & Overton.

St. Michael's Church, Beddington: vicarage, Milton Road.

House, Beddington, for Messrs. Claridge & Son.

SUSSEX.

Bexhill.—House, Sutherland Avenue, for Mr. H. P. Farnfield.

"Hollowdene," Cooden Drive: addition. Mr. J. B. Wall, F.R.I.B.A., architect, 13 Devonshire Road; also

No. 2 Devonshire Road: addition.

St. Peter's Boys' School, Holliers Hill. Mr. G. H. Gray, architect, 21 Sea Road.

Eastbourne.—Church, Dacre Road. Mr. G. E. S. Streatfield, F.R.I.B.A., architect, 9 Stone Buildings, Lincoln's Inn, London.

No. 8 Mountney Road: additions, for Mr. F. J. Wright.

Westhampnett.—Isolation hospital, Summersdale. Mr. G. C. Vernon Ingpen, architect, South Street, Chichester.

WARWICKSHIRE.

Nuneaton.—Four houses, Norman Avenue. Mr. J. B. Hingley, architect, Bank Chambers.

House, Lutterworth Road, for Mr. S. Flowers.

Eight houses, Marlborough Road, for Mr. Woodhead.

Six houses, Westbury Road, for Messrs. Stanley Brothers, Ltd.

WESTMORLAND.

Kirkby Stephen.—House, Rowgate. Mr. J. F. Curwen, F.R.I.B.A., architect, 24 Highgate, Kendal.

WORCESTERSHIRE.

Bewdley.—House, Wribbenhall, for Mr. Hunt.

YORKSHIRE.

Dinnington.—R.C. Church.

Halifax.—Public Hall, for the Halifax Socialist Halls, Ltd.

SCOTLAND.

Airdrie.—Garage and offices (£2,400), for the Tramways Company.

Dalmuir.—Y.M.C.A. Institute (£600).

Kirkcaldy.—Warehouse: additions, for the Abden Linen Works.

IRELAND.

Ballyratten, Castlecary.—Intercepting hospital.

Glandore.—Marine Hotel: rebuilding, for Messrs. Deasey & Co. (of Clonakilty).

Milltown (Galway).—Parish Church: alterations. Mr. J. V. Brennan, architect, Belfast Bank Chambers, Belfast.

THE Amesbury Abbey Estate, including Stonehenge, was submitted for sale, by auction, at Salisbury, on Tuesday last, by Messrs. Knight, Frank, and Rutley. Sir Howard Frank explained that the estate came into the market in consequence of the son of Sir Edmund Antrobus being killed at the Front, followed by the death shortly afterwards of Sir Edmund himself. The estate, as a whole, comprising 6,400 acres, with a gross rent-roll of £5,359, was first submitted, but there was no bid, and it was then offered in lots. Amesbury Abbey was not sold. Stonehenge was offered with just over thirty acres of downland, comprised within the fence erected by the late Sir Edmund Antrobus. The first bid was one of £5,000, and, rising by hundreds, the figure quickly reached £6,600, at which it was knocked down to Mr. C. H. E. Chubb, of Bemerton Lodge, Salisbury. It was stated that the net receipts from admission fees to the monument are £360 per annum, so that the purchase represents an investment of about 5 per cent. So far as the public are concerned, the change of ownership of Stonehenge will not, it is considered, have any noteworthy effect. Stonehenge was some years ago scheduled to the Ancient Monuments Protection Act of 1882, and it can only be sold subject to the following stipulations: (1) That the public shall always be allowed to have free access to it on payment of such reasonable sum per head not exceeding 1s. for each visit, (2) that it shall so far as possible be maintained in its present condition, and (3) that the purchaser shall not erect any buildings within a certain prescribed distance of the circle.

THE Estates Committee of Sheffield City Council have received a report from the Chairman and Town Clerk with reference to an interview they had with the principal architect of His Majesty's Office of Works. From this it appeared that, owing to the proposed erection of new factories in Sheffield, and extensions of existing works, a large number of additional houses will be required to accommodate workers who are being imported into Sheffield. The official in question asked that the Corporation would allow their officers to assist the Government in the negotiations for and the purchase of sites, and in arranging for the erection of houses, some of which would be of a temporary nature and others permanent. The committee decided to leave the matter in the hands of the Chairman and Town Clerk until definite proposals are made by the Government. They appointed an emergency sub-committee and recommend that it shall have full power to take any action necessary. The Local Government Board have sanctioned the borrowing of £13,200 for the erection of sixty-seven houses on the High Wincobank estate (scheme No. 9), and instructions have been given for the work to be put in hand forthwith.

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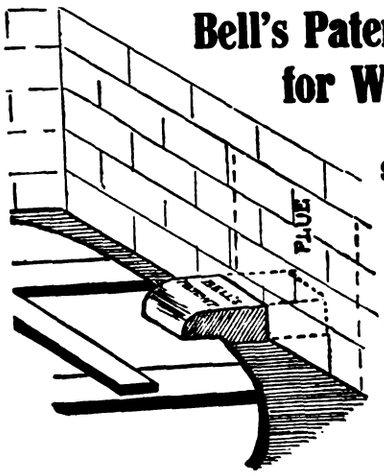
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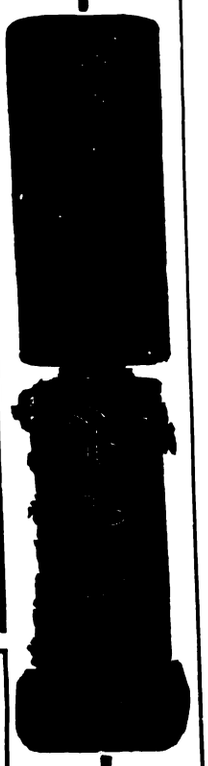
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, October 4.

Society of Engineers : Paper entitled "Law and Engineering," by Mr. S. G. Turner, A.M.I.C.E., Barrister-at-Law, at Surveyors' Institution, at 7.30 P.M.

University Extension Lecture on Renaissance Architecture at Victoria and Albert Museum, 4.30 P.M. Mr. Banister Fletcher, F.R.I.B.A.

Wednesday, October 6.

Egypt Exploration Fund : Paper entitled "The Excavations at Balabish," by Mr. G. A. Wainwright, at 4.30 P.M

Institute of Sanitary Engineers : Opening Sessional Meeting at Caxton Hall, Westminster, S.W., at 8 P.M.

FORTY YEARS' PROGRESS IN CONSTRUCTION.

An excellent criterion of the advances made in any form of industry is furnished by a comparison of the text-books for the instruction of the younger members of that industry, provided that high-class examples of such text-books be taken, and not merely selections from the numerous class of réchauffé hand-books which are superabundant in every case, and usually trust for the extent of their publication to a reduced price or the favourable position of the author as an instructor or school-master to enforce the use of his production upon a certain circle.

The position that was taken forty years ago by the text-books on building construction, familiarly known as "Rivington's Notes" from the anonymity of the authors and editor, as the standard of such text-books, was due to the fact that at the time they were more up-to-date and more complete than any other then accessible to the student. But the forty years that have elapsed since their first publication have seen many advances and much progress in building construction and in the application of science and scientific industry to building. Necessarily, therefore, the architectural student of to-day has before him a far wider extent of subjects to be studied than his predecessor of forty years ago.

So great has been the progress that the ordinary amount of revision in successive editions of "Rivington's Notes" has been insufficient, speaking plainly, to enable it to maintain its premier position, and this has been successfully challenged by other competitors, which have added to the attraction of lower price a superior up-to-dateness. It has, therefore, we consider, been wisely determined by the present proprietors to place before the public interested in building a "new edition,* entirely re-written," in which the older matter has been practically scrapped, and an up-to-date work provided. In contrast to the former anonymity, the public is now permitted to know, and is boldly informed, that the new edition has been prepared under the editorship of W. Noble Twelvetrees, M.I.Mech.E., M.Soc.Ing.Civ., Past-President Civil and Mechanical Engineers' Society, Member of Board of Examiners, Soc.E.-(Inc.); and that, in addition to the editor, the several sections of the new publication have been contributed by Patrick Abercrombie, M.A., Lecturer on Building Construction, Liverpool University; A. H. Barker, B.A., B.Sc., Lecturer in Heating and Ventilation, University College, London; Reginald Blomfield, M.A., R.A., F.S.A., F.R.I.B.A., Past-President R.I.B.A., Hon. Fellow of Exeter College, Oxford; W. Douglas Caröe, M.A., F.S.A., F.R.I.B.A.; A. W. S. Cross, M.A., F.R.I.B.A., Vice-President R.I.B.A.; E. Fiander Etchells, Hon. A.R.I.B.A., A.M.Inst.C.E.. A.M.I.Mech.E., Member of Boards of Examiners, Inst.Mun.E. and Soc.E. (Inc.), Building Act Section, L.C.C.; Herbert Phillips Fletcher, F.R.I.B.A., F.S.I., A.M.Inst.C.E., Barrister-at-Law of the Middle Temple, Director of the Trades Training Schools of the Associated City Companies; Sidney G. Gamble, F.S.I., A.M.Inst.C.E., Divisional Officer, London Fire Brigade; Matt. Garbutt, F.R.I.B.A., A.M.Inst.C.E., Hon. Examiner, R.I.B.A.; Brook Kitchin, F.R.I.B.A., Architect to the Local Government Board; H. V. Lanchester, F.R.I.B.A., Vice-President R.I.B.A.; Alan E Munby, M.A., F.R.I.B.A., Hon. Examiner and Past-Chairman of Science Standing Committee, and Past-Member of Council R.I.B.A.; W. Kaye-Parry, F.R.I.B.A., M.Inst.C.E., Member of the Board of Examiners, R.San.I., Vice-President Royal Institute of Architects of Ireland, M.Inst.C.E.I.; Professor Beresford Pite, F.R.I.B.A., Professor of Architecture, Royal College of Art, South Kensington; W. S. Purchon, M.A., A.R.I.B.A., Lecturer in Architecture, the University of Sheffield, Member of Board of Architectural Education, R.I.B.A.; William Pywell, F.R.I.B.A., Medallist, Architectural Association, London; Professor C. H. Reilly, M.A., F.R.I.B.A., Professor of Architecture, Liverpool University, Past-Member of the Council R.I.B.A., Member of the Board of Architectural Education, R.I.B.A.; W. E. Riley, R.B.A., F.R.I.B.A., M.Inst.C.E., Superintending Architect of Metropolitan Buildings, Architect to the London County Council; W. T. Sweet, Secretary of the British Institute of Certified Carpenters, Examiner in Carpentry to the City and Guilds of London Institute; Herbert W. Wills, F.R.I.B.A., Editor of "The Builder."

It might be expected from the list of contributors that the new edition of "Rivington's Notes" may be taken as a fair criterion of the present state of knowledge and of practice in building construction, and such, on a careful examination, we find it to be.

The past forty years have seen a great increase in the number and intricacy of the various legal restrictions upon and requirements in building, both by Parliamentary statutes and by municipal by-laws and regulations, so that the young architect and builder has before him the study of, or at least the acquaintance with, a vast extent of legal literature, to say nothing of the case-made law founded upon it.

Foundations have been the subject of study and experiment through all the ages in which men have been builders, and it might be supposed that the limit of knowledge and ingenuity had been attained by experience; but even here we are reminded by our new text-book that progress has been made during the last forty years, chiefly by the more extended use of concrete and steel, either in the form of grillage, sheet-piling, or bearing piles of concrete, in which latter detail there has been much development, comprising the use of piles of plain concrete, moulded in advance or formed *in situ*, reinforced concrete piles, and especially subsoil-expanded piles, the variety of which, by the way, is far greater than the new text-book would lead the young student to suppose. Even scaffolding has seen advance made,

* "Rivington's Notes on Building Construction." A book of reference for architects and builders and a text-book for students. Parts I. and II. Edited by W. Noble Twelvetrees. New edition, entirely rewritten. With 484 illustrations in Part I. and 395 illustrations in Part II. (London: Longmans, Green & Co. 7s. 6d. net each volume.)

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principally in the construction of gantries, both ordinary platform and traveller varieties, and derrick towers.

The use of concrete and steel has been the propelling power to progress in many directions. Concrete walls and floors have required much thought and ingenuity, coupled with the lessons of experience before we have arrived at the present methods of constructing their moulds and temporary supports. Reinforced concrete has become almost an independent industry, or at least a specialised branch of applied science, and requires very extensive and intensive study on the part of all concerned with its application. Some of the problems connected therewith still remain open for solution; but at least we have arrived at a very fairly satisfactory recognition of working hypotheses. Steel-frame building is another specialised branch of applied science which has reached its present position entirely within the last forty years, and, like reinforced concrete, still possesses unsolved problems. The advantages of reinforced concrete have suggested the possibility of increasing the valuable properties of brickwork in construction by applying to this time-honoured form the principle of reinforcement. The suggestion is entirely logical, for brickwork may be regarded as a regular, whilst concrete is a fortuitous, combination of aggregate and matrix, and its adoption has been successful. Thus the knowledge of the modern architect must embrace the methods and capabilities of reinforced brickwork as well as of reinforced concrete.

Fire-resisting construction has, in the last forty years, advanced far beyond the days of the fetish that whatever had once "passed through the fire" was thereafter and indisputably fireproof. We now recognise that there is nothing that is fireproof; that many substances which have not "passed through the fire," and even inflammable timber, may be, if properly used, fire-resisting for a greater or less period of time. One most important lesson that we have learnt in connection with fire-resisting construction is that the happy experience of some particular material or form of construction in a conflagration is not sufficient evidence of fire-resisting quality. We know that a deal box will sometimes come unscathed out of a fire-destroyed building in which the contents of a so-called "fireproof" safe have been reduced to tinder.

Passing on from a consideration of structural or carcase operations to finishings, we find advances made of high value in drainage and the disposal of sewage, in water supply, plumbing and sanitary fittings, whilst the application of science has made possible immense progress in heating, lighting, and ventilation, and in the employment of electricity.

Our brief enumeration of the most important directions in which progress in building construction has been accomplished during the last forty years is sufficient to enable us to realise that the "Rivington's Notes" of 1875 are hopelessly out-of-date in 1915, and, therefore, an entirely re-written edition was necessary to enable the text-book to resume, and firmly hold, the premier position it formerly held. This, we are confident, the new edition will at once achieve, even though we fully recognise the limitations which are imposed upon a general text-book of building construction. Parts I. and II. of the new "Rivington's Notes on Building Construction" take the place of the former volumes similarly numbered. As a text-book they are necessarily limited in size, and as they have to deal with a multiplicity of subjects, many of which, individually, have already received adequate treatment in monographs of equal bulk to each of the present volumes, and in some cases of greater bulk, it is obvious that the task of the editor has been great to decide how much of omission and selection should be practised with regard to each individual subject.

It would be easy to object, for example, that too much space has been given to electric-lighting, and too little to acetylene and petrol-air gas; but the reply would be effective that a thorough working knowledge of electric-lighting would be of greater value to the majority of young architects and builders than an incomplete understanding of electrical methods for the sake of a fair knowledge of acetylene and petrol-air gas. On the whole, we think the editorial work of selection has been very fairly performed, though we are inclined to cavil at the inclusion, without condemnation, of some of the earlier attempts at fireproof construction which have now become superseded by reason of their proved inefficiency. Some more modern forms mentioned and illustrated, though possessing good features, have disappeared from the market under the stress of business competition. It is unwise, in our opinion, to include in a text-book for students methods of construction which they cannot, or ought not, to use.

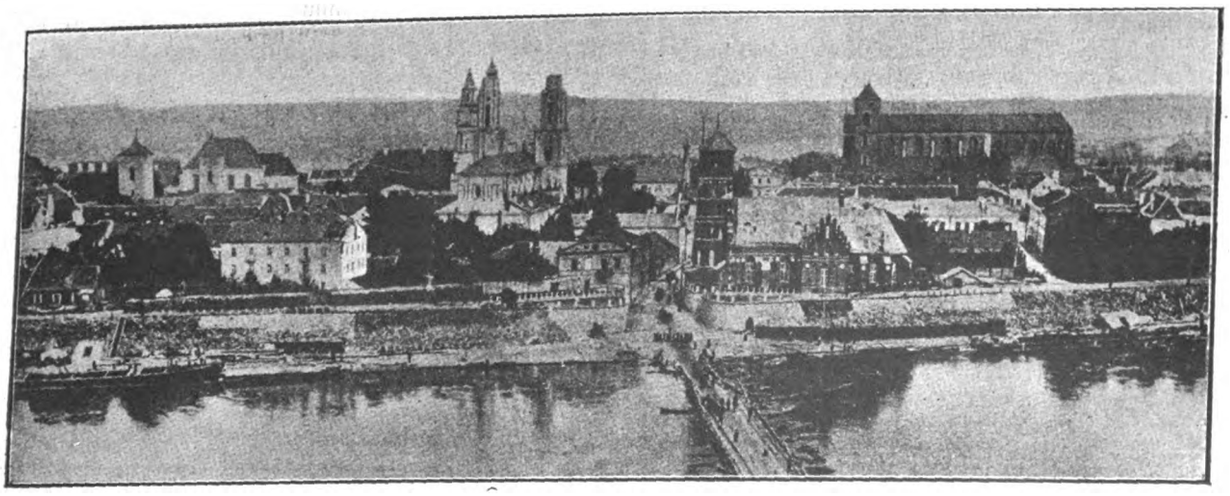
Another trouble which the editor of such a text-book as the present has to face in dealing with the contributions of eminent architects and experts is the tendency of such individuals towards personal preferences and even fads. In the mention of the products of manufacturers and patentees there are instances of selection, on no very valid grounds, of certain individuals in preference to their competitors in business. Examples of such preference are particularly noticeable in regard to window casements, roof glazing, and fire-resisting construction. Of actual faulty work on the part of his numerous contributors, the editor has contrived to exclude, or has been fortunate enough not to encounter, any considerable extent; but some has almost inevitably crept in, as, for example, in the details of hollow-wall construction.

We are not convinced of the value of the very limited number of specimens of examination papers set by many different examining bodies. We must presume that their inclusion is a concession to the tradition of the earlier editions, which would have been better ignored. A far more useful appendix, in our opinion, would have been a bibliography of the most recent and satisfactory works in which the student might more freely pursue his acquisition of knowledge with regard to the many subjects which a general text-book must necessarily treat incompletely. Still, when all objections have been made, we must record our deliberate judgment that the new edition of "Rivington's Notes" occupies, and will maintain for a long time to come, the position of the premier text-book in the English language on building construction.

NOTES AND COMMENTS.

The good work which is being done, unobtrusively but effectively, by the Professional Classes War Relief Fund, needs further funds to meet the very urgent need for alleviating the truly pitiful present condition of previously well-to-do members of professions, and a Christmas-in-Wartime Sale has been organised by the Council of the fund, all proceeds derived from which will be applied to the relief of members of the professional classes who have been hit by the war. The scheme of the Sale is based on the donation of gifts which shall be sold for five shillings, and these are intended to be classified under the five headings of (1) Knitted goods; (2) Needlework; (3) Handicrafts (jewellery, leather, cretonne and basket work; (4) Games, Toys and Woodwork (including wood carving, poker work, &c.); (5) Cooking. A feature of the intended show is the institution of competitions for prizes of £3, £2 and £1 for the best three articles in each of these classes. There is also a special prize competition, with prizes of £5, £3, and £2, for articles under any class, made by wounded soldiers. There must be many in the architectural profession who, though not reduced to such extremity as to need the assistance of the Professional Classes War Relief Fund, have their usual activity lessened so that they could find time to make articles for the Sale, and these we would urge to send a postcard to the Gifts Secretary, Professional Classes War Relief Fund, 13 and 14 Prince's Gate, London, S.W. Articles of any value, other than 5s., will also be most acceptable for the Sale, although not eligible for competition for the prizes.

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KOVNO.—LOOKING ACROSS THE NIEMEN.

The General Secretary of the Amalgamated Society of Carpenters and Joiners, Mr. F. Chandler, in a letter to the "Manchester Guardian," complains of the reluctance of "the powers that be" to make use of the unemployed in his organisation—who on September 1 last numbered 1,555—as workers in munition factories, in view of the statement by Mr. Lloyd George at the Bristol Trade Unions Congress, that he needed 80,000 more skilled men than he had then got, and 200,000 more unskilled workers. We can very well understand the reluctance of "the powers that be." In vernacular language—they've had some. The numerous huts that were erected for the accommodation of troops in training last winter, and the many temporary hospitals that have been put up during the spring and summer, have suffered from the trade union methods of restricting output, and the supply of munitions is too serious a question for any Minister charged with their provision to willingly increase the number of workers in his factories so highly skilled in the modern art of making a little work go a long way as the carpenters and joiners have shown themselves to be. It has been proved in our munition factories that unskilled week-end workers can quickly learn to tend a machine and turn out 100 to 150 per cent. more work in a given time than expert trade unionists. There can be no doubt that our trade unions have overshot the mark in their highly trained restriction of output, and one of the lessons the war is teaching the country is that any intelligent unskilled worker, male or female, can exceed the effectiveness of the modern skilled trade unionist.

The architect to the Ecclesiastical Commissioners, Mr. W. D. Caröe, M.A., F.S.A., in a report on the fabric of Malvern Priory Church states that a great deal of money has been laid out upon works of repair which have worn badly. A true knowledge of the methods of mediæval masonry, to the soundness of which methods we owe in the main the extraordinary permanence of our ancient churches, is (he says) far to seek among the majority of to-day's craftsmen, and was seldom part of the equipment of even our most distinguished Victorian restorers. The greater amount of the decayed stone belongs to work of the last century. There are, fortunately, only a few points where the structure needs strengthening. Weak places exist chiefly in some of the cracked Norman pillars of the nave, and in two long fissures starting in the Norman wall over each of the first pillars from the west end, and extending up into the later work above. The unequal composition of the pillars has helped to the cracking of the walls above. Over and above the superficial decay, which extends over a large area of the surface, some of the buttresses have cracked considerably, and must be dealt with.

The architect goes on to say that the security of the windows is of first importance when they sustain so much invaluable glass. At present the protection of the glass is dealt with in a very haphazard and unsightly manner, and the glazing of the north choir clerestory is in a somewhat precarious condition. Mr. Caröe's examination of the tower leads to the conclusion that no grounds whatever exist for refraining from ringing the bells, provided they are hung in a properly-designed frame and some cracks in the tower walls are made sound. He anticipates that an expenditure of £2,146 will be sufficient. Of this sum £391 is exclusively set aside for the proper protection of the ancient glazing, quite apart from the necessary repair of the stonework of the windows.

A report from Professor A. M. Woodhead, of Leeds University, on the Roman coins found at Halifax several months ago, was presented at a recent meeting of the Corporation Committee, which has the matter in hand. The report states: On May 21, 1915, some girls from the Crossley Orphanage School found a few objects on and among the broken scree at the foot of the upper level of the rocky outcrop known as The Rocks. These proved on examination to be Roman copper coins of the fourth century of our era. The find-spot is about 400 yards east of the quarry, which is at the west end of the drive and less than twenty feet below the modern road level. A rough path leads down The Rocks at this point, and the coins were found on and around the path.

The find was soon reported, and careful steps were taken to ensure that all the coins that could be found were collected and preserved. Thanks to the interest and diligence of Mr. G. B. Newport, headmaster of the Orphanage School, this was assured. I visited the spot in his company a few days later, and in a careful search we found only two more specimens, which probably exhaust the hoard. No trace of a vase or other receptacle was to be seen, and it is obvious at a first glance that no Roman habitation could ever have occupied the site.

The most natural explanation of the hoard is that the coins were hidden in a bag of leather or some other perishable material in a crevice of the rock, which has in the interval disintegrated, carrying the coins with it, and scattering them down the slope. Owing to the friable nature of the "millstone grit" it is useless to conjecture the original position and shape of the hiding place; and the exact circumstances in which the coins were buried must remain equally doubtful. With the composition and dating of the hoard we are on safer ground. (1) Except for six "2nd brass," all are of the size known as "3rd brass," varying between eleven and seventeen millimetres in diameter; (2) except for one coin of Tetricus (ca. 268 A.D.) all belong to the dynasty and period of Constantine, in fact to its later period, and I believe that

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all the coins, with a very few exceptions, were struck between 328 and 345 A.D. As only a small number are quite indecipherable, and as apparently the hoard has been recovered complete, or practically so, we have an interesting illustration of the coinage in circulation in Roman Yorkshire about the middle of the fourth century.

Professor Woodhead states that the coins number 1,075, and after giving their distribution by Emperors and by mints he goes on to say: "As is normal in British hoards of this epoch, by far the greatest number of coins in the hoard were struck at the mint of Treves, and the other Gaulish mints Lyons and Arles come next in order of representation. The mints further east are very scantily represented, though the disproportion between them and the western mints is not surprising. The absence of London-minted coins is to be explained by the fact that the mint was closed in 326, and none of our coins are quite so early, except, of course, that of Tetricus. Finds from Halifax region are by no means rare, but I know of no other exactly analogous to the present hoard. Perhaps the most interesting parallel comes from lower down the Calder Valley, namely, the find made at Stanley, near Wakefield, in October, 1905, when 7,198 were found in a jar on a farm there. They belong to the same Emperors and mints as our present hoard, but one or two seem slightly later."

Writing in this month's Parish Magazine concerning excavations which have been carried out at St. Mary's parish church, Shoreham, chiefly on the site of the old nave, the Rev. Walter Marshall, M.A., F.S.A., says: "These excavations are largely but not entirely confined to the nave, which, like the naves of Boxgrove and Winchelsea, has almost disappeared. It is these digging operations which account for the state of the churchyard at the present time, which, with its mounds of newly upturned earth must have caused many to wonder what was going on. The position of the outer walls of the nave is well-known to all who are familiar with your church, because portions of them still remain above ground. But we have now found the position of the western doorway, with its steps leading down into the nave; also the large south porch, bases of pillars, and so on, have already come to light. The level of the floor has clearly been traced, showing that on the average the present level of the ground over the nave is about four feet above its original position. The vexed question as to the date when the church was enclosed at the east end of the nave is almost certainly proved, as well as much else of great interest. The excavations are not yet completed, and much else may yet come to light. The brief notes which have already been written upon your church, in the hope that they may help those who visit it but are not well versed in its architecture, scarcely refer to these excavations, as it was thought advisable not to delay their publication. But it is hoped in due course to write fully about them. May I add that in making the excavations the sanctity of the churchyard is being jealously guarded, and that none of the graves are in any way disturbed?"

French Artists and the War is the subject of one of the opening exhibitions of the autumn season at the Leicester Galleries, Leicester Square. Among those contributing appear such famous names as Forain, Steinlen, Leandre, Hermann-Paul and Willette, but perhaps the most novel feature will be a number of sketches sent direct from the Front by artists now serving in the trenches. This exhibition will open on October 2, and on the same date a series of fifty war cartoons entitled "The Kaiser's Garland" by Mr. Edmund J. Sullivan will be shown in these Galleries.

The following item, which has been transmitted by German wireless to this country, purports to be a message from Berlin to the German Embassy at New York, but is probably only a characteristic Teutonic blundering attempt to influence neutral opinion, which by all intelligent people will be regarded as insult added to injury: "A day has been set apart for the discussion in Brussels of the restoration of destroyed and damaged monuments and works of architectural value. Karl Rehorst has been appointed by the German Civil Government to Belgium as architectural adviser. Rehorst advocates the principle that public and private buildings of artistic value which are partly destroyed are to be restored to their original form, while all new structures are to be of an architectural style to conform with their environment."

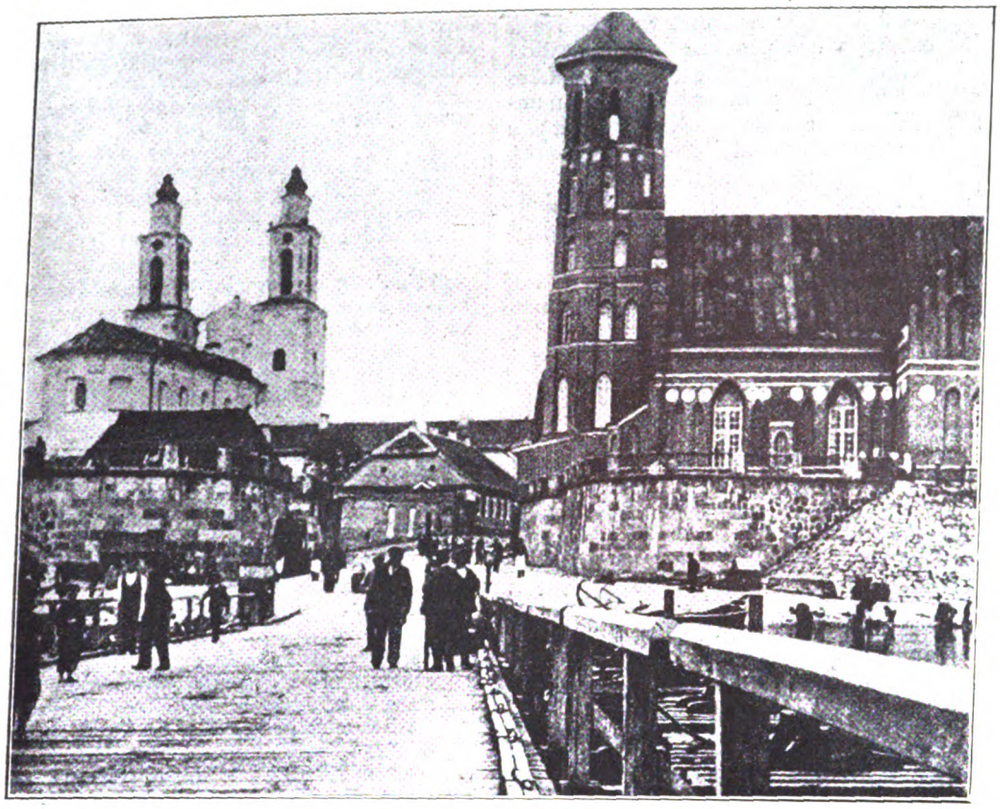
A curious sequel to the war and its economic effects has been noticed by the Paris correspondent of the "Morning Post" in the rising price, we will not say value, of old masters and other works of art. Regarding the higher classes of works of art, he records the personal experience and views of Mr. J. P. Labey, one of the leading New York dealers, who is just completing a somewhat disappointing buying trip in Europe. The opinion in America, he said, was quite unshakeable that one had only to come over to Europe with some hundred thousand dollars in cash to be able to buy anything conceivable, up to the Venus de Milo, at a thief's bargain. The actual facts Mr. Labey has found to be very much the contrary. Even professional dealers are not the least inclined to liquidate their stocks for anything but fully conventional trade profits. To cite a specific case. There was one particular picture coming up for sale that Mr. Labey had marked down as his. He was prepared to go to £2,500 for it, which he considered a high bid even in normal times. It fetched over £3,000. He cabled for instructions, and next day approached the purchaser with an offer of 10 per cent. higher, which was laughed at. America itself, he asserts, even with its present trade boom, is not yet prepared to pay the prices for pictures Europe is paying to-day, although the contrary is usually the case. Private owners of valuable things in England or France do not appear to evince the smallest desire for converting their treasures into ready cash. Among the reasons for this, in the first place, is that French art dealers are almost always possessed of ample capital, and are by no means forced to turn over their money rapidly, and, of course, there is the fact that over here we are not personally so hard pressed for ready cash as some would like to make out.

These reasons, however, do not explain the willingness to sink money in purchasing works of art, even at high prices. Other suggestions have been made, the most significant of which is that many people with idle capital are endeavouring to ambush it in the tangible form but intangible value of, say, pictures which, while being standard commodities in the markets of art, would escape, as they think, any compulsory action by Governments in borrowing capital for the purposes of war loans. This reason seems to go deeper into the heart of things than any of the other more superficial ones, because it explains the brisk buying at enhanced prices, as well as the clinging to their treasures, by people who in normal times would be open to a cash offer.

The operation of the repairing clauses of leases which are approaching their end often introduces a peculiar difficulty when good-class residential property has during the term, by reason of civic expansion and change of local character, been transformed to manufacturing or commercial uses. Of this the Liverpool Estate Committee has recently had experience when approached by one of the most influential deputations which has ever sought audience with the Liverpool Municipal Governors. The subject of protest was the imposition on property-owners by the proposed enforcing of the leaseholds on Corporation property, making it obligatory on leaseholders to make good all dilapidations, and restore the property to its former condition when originally taken over.

One of the most cogent arguments put forward by the deputation in our opinion was that if the enforcement of

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KOVNO.—CHURCHES ON THE BANK OF THE NIEMEN.

the strict legal rights of the Corporation with regard to dilapidations was carried into effect the result would be that these leases when they were approaching their termination would be handed over to men of straw. Instead of getting the present care and attention from respectable and reputable agents and real owners in the last few years of the lease the property would be left in the hands of undesirable persons who would use it for their own purposes of exploitation and against whom the Corporation would have no redress.

A company with the title of the Institute of Industry (of Great Britain and Ireland), Ltd., has been registered as a company limited by guarantee with an unlimited number of members, each liable for £5 in the event of winding up, to promote, increase, and develop the industrial, scientific, financial, and commercial activity of the United Kingdom of Great Britain and Ireland, and his Majesty's overseas dominions, colonies, dependencies, and possessions, and generally to further and encourage inter-imperial trade throughout the British Empire by all lawful means, and to capture, retain, and develop branches of industry, trade, and commerce which have fallen into the hands of those who are now alien enemies of Great Britain, to watch over the interest of non-alien traders in connection with rates charged by railway and shipping companies and other carriers for the conveyance of goods, and to endeavour to obtain the removal or reduction of all unfair or excessive rates, tolls, and charges.

WAR ITEMS.

The British Fire Prevention Committee's "Fire Warnings" have been before the public from time to time in connection with the war emergency, but the different forms of "Fire Warnings" available and the extent to which they can be obtained gratuitously does not appear to be generally known. The following particulars are accordingly given:—

The "Fire Warnings" obtainable in poster form, printed in red 8 inches wide, are as follows, and the reference number must be given in all communications regarding them:—

For military and auxiliary military hospitals (No. 10).

For private hospitals, convalescent homes, and hostels (No. 11).

For hospitals taking Belgian wounded: in French (No. 11a), in Flemish (No. 11b).

For Indian hospitals and depôts: in Panjabi (No. 11c), in Urdu (No. 11d).

For refugee hostels (No. 12), in French (No. 12a), in Flemish (No. 12b).

For farmers (No. 14).

For troops billeted (No. 15).

For works and factories engaged on Government orders (No. 16).

For elementary and secondary schools: *re* air raids (No. 20).

For public schools and boarding schools: *re* air raids (No. 20a).

Re fires due to air raids (No. 17): for householders, &c.

Re fires due to air raids (No. 17a): as to dealing with incendiary bombs, &c.

All Government Departments and military authorities receive the supplies of the "Warnings" free.

Supplies of any "Warning" are issued free to Police Forces upon the written request of the Chief Constable. Applications from constables or special constables connected with such forces cannot be considered.

A suitable number of copies of "Warnings"—No. 10, 11, 11a, 11d, or 17a—are obtainable free from the British Fire Prevention Committee by officers, doctors, or matrons of naval, military, auxiliary military, Red Cross, or St. John hospitals, and civil hospitals or convalescent homes taking military patients upon written application, addressed to the Registrar, at 8 Waterloo Place, London, S.W., giving the full name of the institution, the number of beds contained, and the postal address.

Local authorities and school or refugee committees—as also the clergy and headmasters or headmistresses—

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requiring "Warnings" No. 20 and 20a (for schools) or Nos. 12, 12a, and 12b (for refugees) will receive a suitable number of copies free upon written application to the Registrar, giving the full name and postal address of the institution for which they are required, the number of pupils or refugees, subject to their enclosing a large-sized, addressed, and properly stamped envelope for despatching the necessary posters.

Factory owners, estate owners, farmers, shopkeepers, and householders requiring copies of the British Fire Prevention Committee's "Warnings" must similarly enclose large-sized, stamped and addressed envelopes for reply, but only receive a strictly limited number. Their communications cannot be attended to unless the return stamped and addressed envelope is provided, and in any case they are only dealt with in rotation of application after the requirements of the authorities have been met.

All communications as to "Warnings" should be in writing, addressed to the Registrar, the British Fire Prevention Committee, 8 Waterloo Place, London, S.W., and not by caller or telephone.

Over a quarter of a million posters have already been issued by the Committee gratuitously.

UNIVERSITY EXTENSION LECTURES IN MUSEUMS.

The courses of University Extension Lectures given by Mr. Banister Fletcher, F.R.I.B.A., in the museums are being resumed again this session.

It has been decided to continue these weekly lectures, both for the sake of students preparing for the University Diploma in the History of Art, and also for the general public, to whom foreign architectural monuments are for the present inaccessible through war, while British architecture has become of peculiar interest. It is recognised that most people are engaged on munitions and other war work, but, just as recreation is necessary for soldiers in the trenches, so in the same way a change of interest, such as these weekly lectures provide, is equally useful for workers at home and will enable those who attend such lectures to carry out their national service with the greater efficiency.

These lectures are, in fact, in the nature of week-end rest and recreation and will provide a series of fresh scenes and new surroundings without the trouble of travel, the opportunities for which are now so limited.

The first lecture on Ancient Architecture was delivered at the British Museum yesterday. In this course the art of the ancient Egyptians, Greeks, and Romans will be unfolded, while the first lecture at the Victoria and Albert Museum, Monday, October 4, at 4.30, will introduce the study of Renaissance architecture, in which England is so rich, comprising a wealth of Elizabethan and Jacobean mansions, all the work of Inigo Jones and Sir Christopher Wren, including the City churches and St. Paul's Cathedral.

Admission to the first lecture is free. Full particulars as to tickets can be obtained from the Hon. Secretary, 10 Woburn Square, London.

ILLUSTRATIONS.

CARLTON CINEMA AND RESTAURANT, SWANSEA.

The above premises, which have been erected in Oxford Street, Swansea, occupy the site where formerly stood the Old Jeffrey's Arms Hotel, one of the famous posting houses of Gower.

Executed to the designs of Mr. Charles T. Ruthen, Licentiate R.I.B.A., at a cost of about £15,000, the front elevation of the building has been carried out in Doulton's white Carrara ware, with the bases and caps of the large columns in bronzed ware, and the main entrances in grey unpolished Aberdeen granite. A distinctive feature of the front is the large curved bay giving light to the three upper floors.

In regard to the interior, the whole of the front portion has been planned as an up-to-date restaurant. On the lower ground floor is situated the dining-room, and this floor panelled to the full height in white wood and glazed with silvered plate, imitating large windows, lighted by means of a semi-indirect lighting system, forms a comfortable and brilliantly lighted room.

The cinema, which is situated on the ground floor, has accommodation for 1,200 persons. Fine decorative effects have been obtained here by the free use of fibrous plaster. The walls, which are finished in flat white, have moulded panels, and the interspaces are ornamented with vertical bands, the basal part of the responds being embossed with laurel wreaths. Moulded ribs divide the ceiling into panels, and the latter are embellished with moulded ornament. The cornices, like the ridges of the arches, are heavily enriched with fibrous plaster. Immediately in front of the proscenium is the orchestra platform situated at the bottom of the stair well, the top of which is covered by means of a fine painted glass dome, arranged to slide clear of the well in summer time. The proscenium curtains are fine plush in rose pink, and the upholstered seating downstairs has been carried out in deep rich red.

On the first floor is the café, although the café front executed by Messrs. Pollard & Co., Ltd., in white metal, is arranged on the ground floor. A feature here is the balcony running round the four sides, adding greatly to the effect and available accommodation. The circle, part of the cinema hall, is composed entirely of reinforced concrete, carried out by the Midland Reinforced Concrete Co., of Birmingham, without the use of columns at any point.

A large tea-room is contained on the second floor, and lavatory and still-room accommodation is provided on each floor.

All the floors are served by a very fine elliptical staircase executed in reinforced concrete, finished in terrazzo mosaic work, with wrought-iron balustrading, and there is also a press-button automatic passenger lift, supplied by Messrs. Smith, Major & Stevens, Ltd., of Northampton.

The lighting arrangements in the cinema are by means of plaster bowls, entirely upon the indirect system, the "dimmer switch" being used for the gradual lowering and raising of the lights.

In addition to the contractors above mentioned, Messrs. Böekbinder & Sons, Ltd., of Kentish Town, London, were responsible for the fibrous plaster decorations; the lighting was the work of the British Thomson-Houston Co.; and the steel windows were supplied by Messrs. Williams & Watson, Ltd., Liverpool. The Marble Mosaic Co., of Bristol, did the mosaic work, and the steel construction was carried out by the South Wales Constructional Co., of Swansea. Messrs. Henry Billings & Sons, Swansea, were the general contractors.

ARCHITECTURAL ASSOCIATION SCHOOL OF ARCHITECTURE. DESIGN FOR A CONSERVATOIRE OF MUSIC.

This design was submitted as a Thesis Study in Design for the R.I.B.A. Final Examination in July, and was prepared in the Architectural Association Schools.

The drawings illustrated represent a scheme for a conservatoire of music for a small town on a river. The principal elevation of the building faces the river embankment, and the entrance to the conservatoire proper is approached through a screened colonnade into a courtyard flanked on each side by two-storeyed wings containing students' and professors' class and practice rooms. The main entrance is on the central axis from the courtyard leading through a small entrance vestibule into a longitudinal hall, one end of which is a library, and a small lecture or practice hall the other end. A grand staircase on the central axis off the main hall connects the two floors.

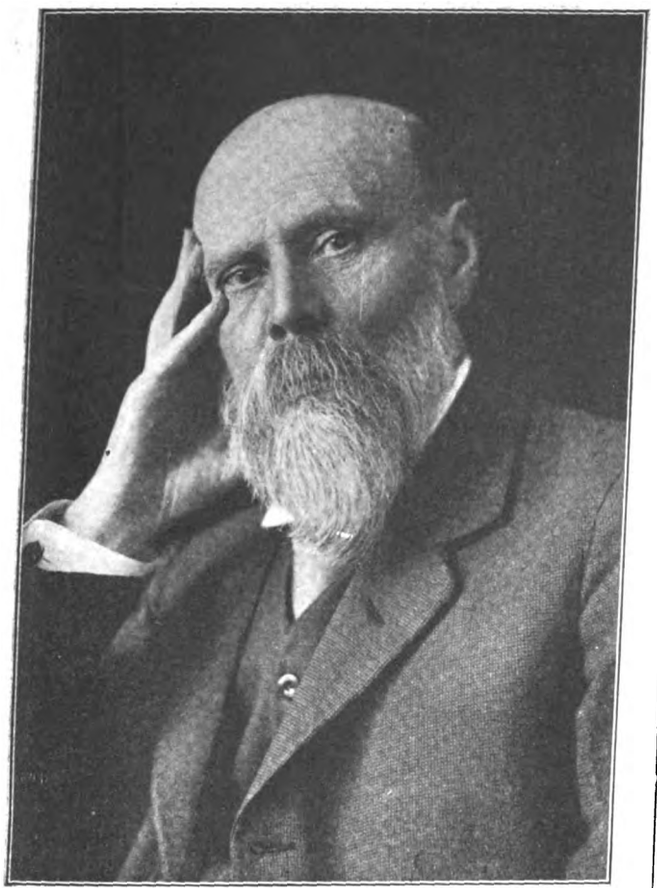
Surmounting the whole building is the concert hall, accessible from the conservatoire by corridors which run alongside the hall and lead to the foyer and public entrance hall at the further end. The corridors open on to terraces on each side leading to the grounds of the building.

The conservatoire can be closed to the public and rendered, when necessary, independent of the concert hall when the latter is used for public concerts, by shutting off the corridors from the concert hall to the main hall of the conservatoire.

The public entrance to the concert hall at the further end faces the principal avenue of the town, thus avoiding intermingling of the students and other personnel of the conservatoire with the public, and ensuring that quiet and seclusion which is indispensable for buildings set apart for study.

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THE LATE MR. J. TAVENOR PERRY.



Photograph by C. Vandyk, Ltd.

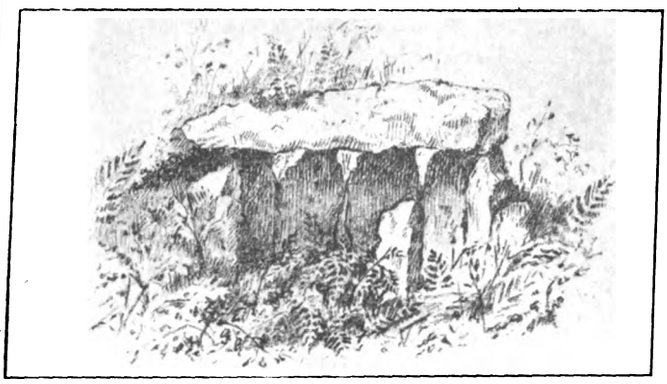
We regret to announce the death of Mr. John Tavenor Perry, whose interesting articles have appeared in our pages for some years past. There are few men who could surpass Mr. Tavenor Perry as a writer on architecture, and the drawings which illustrated them in the minute details shown were faithful records. To those who were privileged to come into close contact with him, his courtesy, unfailing good nature, and his knowledge of men and store of architectural learning could not fail to leave a lasting impression. Apart from his literary achievements, Mr. Perry in his time may well be referred to as a distinguished architect, although since the year 1901 he had ceased to practise. He was born in Chelsea in the year 1842, and became a pupil of Professor Hayter Lewis in the year 1859. He was a medallist and first Pugin student of the Royal Institute of British Architects, an Associate in 1864, and a Fellow in 1896.

To give a list of his works would be impossible in this short record. Among the prominent works designed and executed by him were the schools and vestry to the Chapel Royal, Savoy, this scheme being carried out by the command of Queen Victoria; the school buildings for the Dean and Chapter of Rochester; the north wing and physiological schools of University College, London; the Alhambra Theatre, the Hotel Cecil, the church of Thurville Heath, Bucks, &c.

As a writer his publications include the "Mediæval Antiquities of the County of Durham," "A Chronology of Mediæval and Renaissance Architecture." "The Priory of St. Martin, Dover," "Dinanderie," &c., regular contributions from his pen to "The Antiquary," "The Architect," "The Burlington Magazine," and many other technical and scientific publications.

A GLIMPSE AT THE CHANNEL ISLANDS.

The Channel Islands offer attractions which those who are free from the unpleasant accompaniment of a sea trip cannot fail to appreciate. The climate is most equable, and, so far as Guernsey is concerned, bracing and invigorating. Much, moreover, of interest to the student may be found, either in the direction of geological research upon the coast, or in the collection of numerous botanical specimens which abound throughout the island. So far as architecture is concerned, there is just enough, and not too much, to interfere with the primary object of a holiday—relaxation—so let us take a glimpse of these beautiful

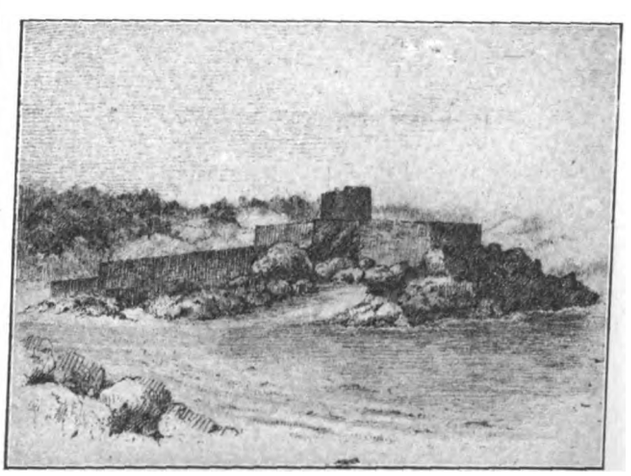


CROMLECH NEAR MONT ORGUEIL, GOREY, JERSEY.
From a Sketch by the late Ernest Runtz.

islands, these veritable gardens of natural beauty, where intending candidates for the Associateship of the R.I.B.A. may, for a time, forget the fact that examinations have to be passed, and where those who have passed the Rubicon may take gentle exercise in Bath chairs and gradually regain their reason.

The best route is from Waterloo viâ Southampton, thence by steamers, which might with advantage be more commodious, to St. Peter Port and St. Heliers. The start is made about midnight, and the journey down the Solent gives us time to make friends with the steward, and, if a bunk has not previously been engaged, settle upon a comfortable spot upon the deck, where we may at least have fresh air and enjoy the novelty of the situation. With a thick rug, an ulster, and a weed as companions, the deck is infinitely preferable to a stuffy saloon, and any inconvenience is amply compensated for by the beauty of the sunrise should the morning prove clear.

In August the Casket Rocks and lighthouse are sighted

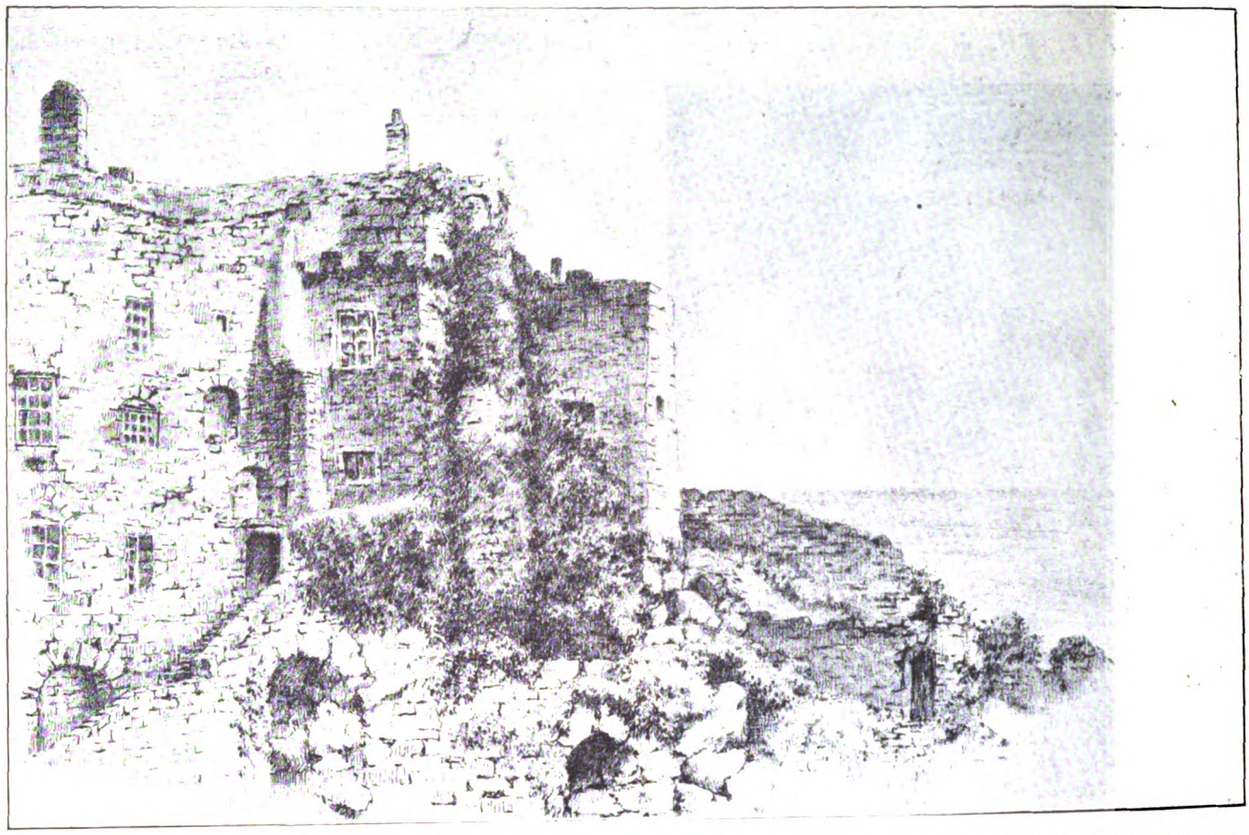


IN ST. AUBYN BAY, JERSEY.—From a Sketch by the late Ernest Runtz.

soon after daybreak, and St. Peter Port, Guernsey, is reached about two or three hours later, when breakfast is served on board, and a twenty-five miles' steam being accomplished, we arrive at St. Heliers, Jersey, a picturesque town with a somewhat imposing harbour, to which Fort Regent forms a striking background.

The advent of the mail packet is an important item in the day's programme at St. Heliers, and the approaches to the landing-stage are literally thronged with porters and

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VIEW OF THE KEEP FROM THE BELL TOWER, MONT ORGUEIL CASTLE, JERSEY.—From a Sketch by the late Ernest Runtz.



THIRD GATEWAY LEADING FROM THE FIRST BALLIUM, MONT ORGUEIL CASTLE, JERSEY.
From a Sketch by the late Ernest Runtz.

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vehicles. We are bustled off to an hotel with but little delay, Bree's, for choice, although the Royal Yacht is fairly comfortable; both, however, are moderate in their charges.

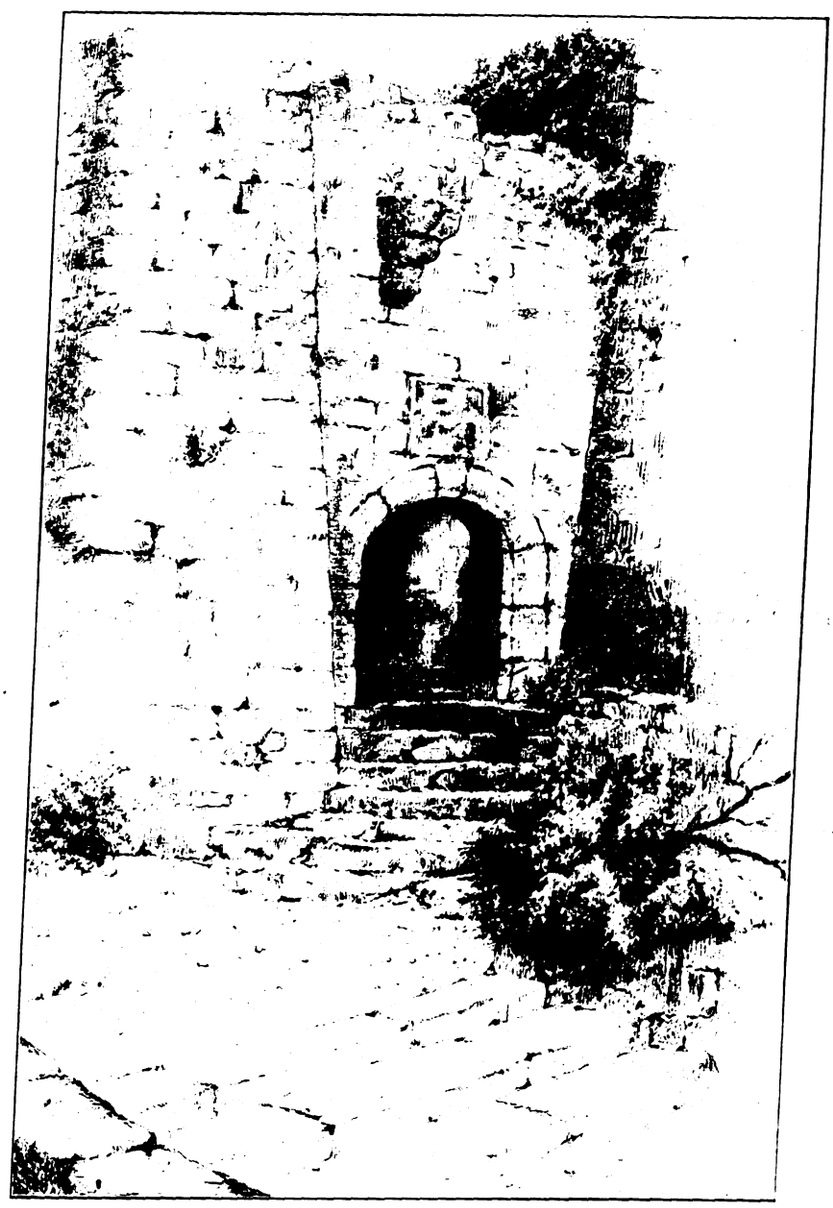
A few hours' sleep will suffice to dispel the effects of a night watch, and a knowledge of the town and promenades be advantageously gained by an after-dinner constitutional. There is much to be seen in Jersey, and should the visitor's time be limited a programme should be mapped out as early as possible and adhered to, otherwise too much time may be spent in the larger island, to the neglect of Guernsey, which in our opinion is the more delightful of the two.

Travelling in Jersey is particularly easy. There are two railways in existence, and a number of the most interesting portions of the island may be explored without fatigue in a few days. To the west the Jersey Railway follows the coast line of St. Aubin's Bay, in which Elizabeth Castle (sixteenth century) occupies a grand position. Its history in connection with the various struggles for supremacy of the island by the English and French nations is extremely interesting.

Portelet Bay, with Janvrin's Tower and St. Brelade's Bay, are within easy walking distance of St. Aubin's Terminus, and the church of St. Brelade is well worth a visit. It has been added to and altered at various times, but there is much deserving attention; the window tracery is distinctly Flamboyant, and a curious tower, bearing a strong resemblance to those peculiar to Ireland, is placed at the corner of the southern transept. Adjoining the church is the Fisherman's Chapel (eighth century); it has a pointed vault, no doubt contemporary with the earlier examples of Provence; portions of fresco-painting may still be seen upon its walls, although much damaged. La Moye Point and the celebrated Corbière Rocks and lighthouse are within easy reach of an energetic tourist from St. Brelade. Taking the Eastern Railway from St. Heliers to Gorey, the great architectural attraction of Jersey may be reached in Mont Orgueil Castle, whereof "Prynne the Puritan," who was imprisoned within its walls for three years, wrote:—

> Mont Orgueil Castle is a lofty pile,
> Within the easterne parts of Jersey Isle,
> Seated upon a rocke full large and high,
> Close by the sea shore next to Normandie;

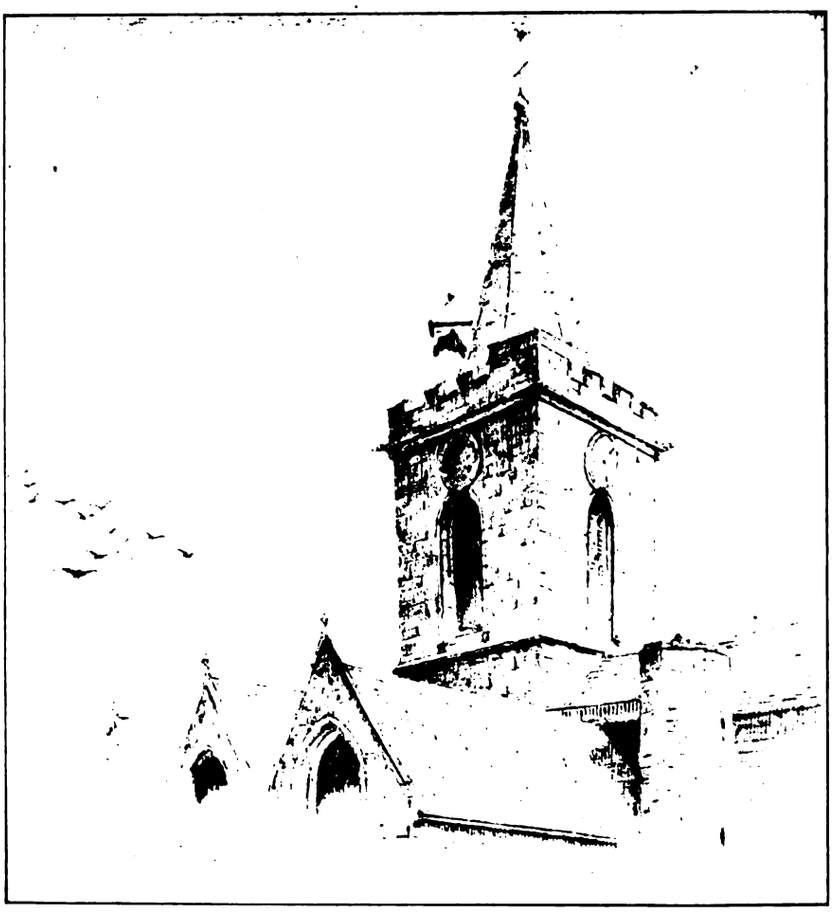
and a great deal more which the reader will better appreciate after visiting this excellent specimen of Mediæval architecture.



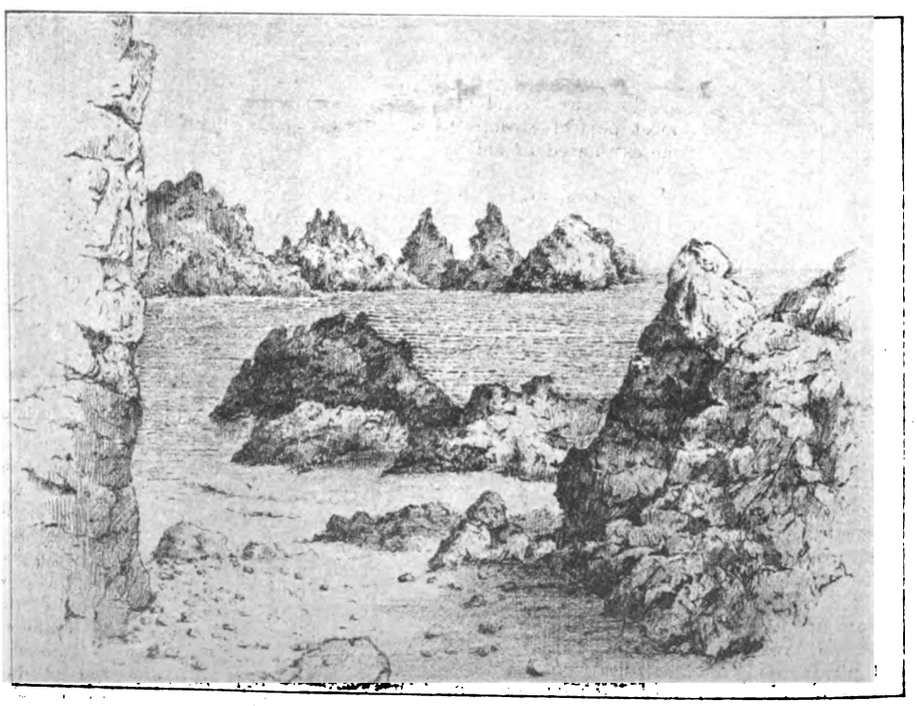
FOURTH GATEWAY, OR MAIN ENTRANCE, MONT ORGUEIL CASTLE, JERSEY.—From a Sketch by the late Ernest Runtz.

There are two gateways to be passed before the first ballium is reached, the second one having remnants of a portcullis, and on passing through which we first meet with the warder, an energetic old soldier from the Emerald Isle, who seems never tired of recounting the history and pointing out the salient features of the ruin of which he has charge. It is well to accompany him at the first visit, in order to master the intricacies of the building; afterwards we can wander in the deserted rooms and chapels and upon the grass-grown battlements, and may, if we so please,

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ST. PETER'S CHURCH, ST. PETER'S PORT, GUERNSEY.—From a Sketch by the late Ernest Runtz

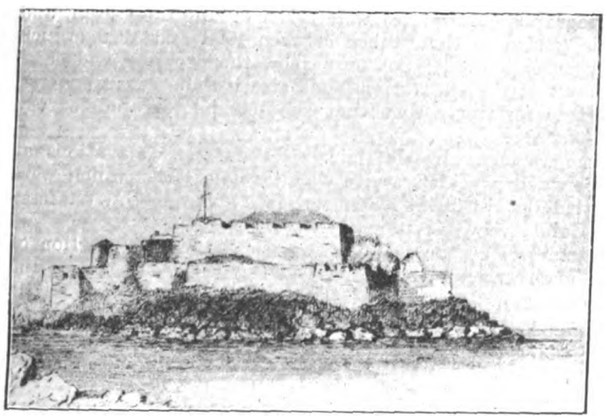


ROCKY NOOK AT MOULIN HUET, GUERNSEY.—From a Sketch by the late Ernest Runtz.

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surreptitiously desecrate the latter by indulging in an *al fresco* meal.

The aforesaid warder, be it noted, though not a candidate for the R.I.B.A., will indulge the visitor with explanations of architectural phenomena. A four-centred Norman arch receives his particular attention, and further, at romance he is no stripling. To describe fully the various portions of the building would be encroaching upon his prerogative, and would no doubt be considered a plagiarism of the guide book, so we content ourselves with mentioning a few of the more important features which deserve particular attention. They are the two inner gates leading to what is known as the Judgment Hall (now in utter ruin) on the left of the last gate, the condemned cell, all of which are stated to have been commenced by Rollo in the tenth century, and completed during the reign of Henry II.



CASTLE CORNET, ST. PETER'S PORT, GUERNSEY.—From a Sketch by the late Ernest Runtz.

The State dungeon, situated about half-way up the castle, leads to the crypt of the chapel; here the highest part of the rock is reached. St. Mary's Chapel over the crypt is somewhat curious in having a pointed roof formed of oversailing courses of granite; a circular staircase leads to the room occupied by Charles II., immediately outside of which is the cell in which Prynne, one of Charles I.'s judges, was imprisoned; a singular triangular building of four storeys forms a part of the castle which in a later period served for the incarceration of pirates. Cæsar's Fort and the crypt of St. George's Chapel will complete the list.

On reaching the summit of the castle the view on all sides is most picturesque, and it is difficult to leave this old ruin so full of historical interest; but to use the bridegroom's stereotyped phrase, "time flies," and our holidays are limited; however, before leaving the neighbourhood the cromlech on the hill immediately in the rear of Mont Orgueil should be inspected—it is a most perfect example, having nine stones, with a crowning one estimated to weigh twenty tons.

One other journey deserves special mention—it is to Pleinmont and the caves. The drive through the renowned Jersey lanes should not be missed, and the caves are a sight never to be forgotten.

To those who are familiar with and appreciate the quieter island of Guernsey, the last item of the Jersey programme opens up a prospect of calm enjoyment and home comforts. St. Peter Port is not far distant, and the rugged shores of the sister isle and the Corbière Rocks are hardly lost to view before we reach there. We engage our landau and drive to Gardiner's Old Government House Hotel, which occupies a magnificent site upon the hill at the back of the town. We feel that the sight-seeing of Jersey is to be succeeded by a period of perfect rest, luxurious ease, charming company, a good *cuisine*, and a vista of deep blue waters, and the picturesque islands of Sark and her neighbours Herm and Jethou which never palls. What praise can be too lavish for this dear old place, with its giant aloes, its roses, geraniums and graperies, the pleasant lawn, the cosy smoking-room, and the hundred and one items which tend to delightful thoughts and pleasant memories? Student, tourist, overworked or case-hardened business man, go, judge for yourselves, and if exaggerated, read no more.

The town of St. Peter Port is quaint, the streets narrow, and, fortunately, behind the modern or suburban style of the major portion of St. Heliers. The cathedral church of St. Peter forms an important feature, and should be visited: the service is musical, the building curious, and the parson brief. A morning at Castle Cornet, to view which a special permit from the governor is necessary, and a visit to the spacious open-air baths facing it, will whet the appetite and prepare us for a walk to Fermain Bay, the nearest to the town; here much bathing takes place *à la Française*, nature having provided spacious caves on either side for disrobing, which are in great request.

By far the best way to see the island is a three-days' tramp around the coast, the wild grandeur of which can only be appreciated by so doing. Petit Bot, Moulin Huet, Saints Bay, the Gouffre, and other marvels of nature alike charm by the beauty and variety of colouring and awe by their ruggedness and height. The writer found comfortable quarters at the Gouffre in a farmhouse upon the main road, and tourists will experience little difficulty in finding shelter, and can, if desired, return by a conveyance obtainable from the hotel.

Creux Mahié, an enormous cave penetrating the cliffs about 200 feet, and from 25 feet to 60 feet in height, forms a feature in the second day's walk; care should be exercised in approaching it, as the Guernsey authorities have provided no protecting fence on the edge of the beetling and precipitous approach. Plemont Point, with its Haunted House, made famous by Victor Hugo (whose residence, Hauteville House, St. Peter, may be examined), follow on, and are at the extreme southern point of the island, where the level suddenly descends and a flat and rather uninteresting road leads to Cobo Bay; from thence a short walk will bring the pedestrian to Grande Rocque, an enormous mass of trap and syenite in terraces. Grand Havre and St. Sampson, where most of the granite quarries are situated, may be taken on the last day, and in this quarter many Druidical remains will prove of interest to the archæologist.

The neighbouring isles of Guernsey are all accessible. Herm, with its famous shell beach, and its twin-sister, Jethou, should be seen. Sark we will make no attempt to describe; Clement Scott's "Island Asleep," a masterpiece of artistic literature, is fresh in our memory; it



SOUTH PORCH, ST. MARTIN'S CHURCH, GUERNSEY. From a Sketch by the late Ernest Runtz.

should win every waverer, and make this lovely island the goal for those in search of rest.

One word of warning to our muscular friends: boating by the inexperienced is dangerous beyond the limits of the bays; the currents are strong and swift, and, without proper guidance (as the writer knows to his great inconvenience), discomfort, anxiety, and hard work, if not positive risk, are the result of the absence of a local pilot.

Much more could we say in praise of the Channel Islands; many more pleasant days do we look forward to on their sunny shores, for there solitude and recreation, health and comfort can be had combined with the unique sensation that we are not being imposed upon by exorbitant charges. Our only regret is that holidays come but once a year, and we leave for home firmly resolved that the first shall not be our last visit to these isolated Gardens of Eden.

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THE AGE OF STONE CIRCLES.

At the recent meeting in Manchester of the British Association, a report was received from the Committee, consisting of Sir C. H. Read (Chairman), Mr. H. Balfour (Secretary), Dr. G. A. Auden, Professor W. Ridgeway, Dr. J. G. Garson, Sir A. J. Evans, Dr. R. Munro, Professors Boyd Dawkins and J. L. Myres, Mr. A. L. Lewis, and Mr. H. Peake, appointed to conduct explorations with the object of ascertaining the Age of Stone Circles.

During the 1914 excavations at Avebury, the object of the Committee was (1) to conduct excavations in the fosse immediately to the east of the entrance-causeway leading from Kennet Avenue, and to reach the original bottom of the fosse at this point, with a view to exploring the lowest layers of silting and exposing the original surfaces of the fosse and causeway; (2) to cut through the vallum so as to lay bare the old surface line. Mr. H. St. G. Gray was again employed to carry out the work under the general direction of the Committee. Careful survey-plans were made of this portion of the monument and of the portions excavated, and a number of photographs were taken.

The finds, although not as numerous as could have been desired, have so far borne out the impressions derived by the Committee from previous excavations both at Avebury and elsewhere (Arbor Low in Derbyshire and The Stripple Stones on Bodmin Moor, Cornwall). No trace of metal was discovered in the lowest layers of silting in the fosse, nor on the old turf line below the vallum, and the probability of the earthworks and stone circle at Avebury being referable to the Late Neolithic period is sustained by the recent evidence. At the same time, it is most desirable that the exploration of the original bottom-surface of the fosse should be prosecuted further, with a view to laying bare a larger extent of this surface and increasing the number of finds therefrom. The most reliable evidence as to the date of the monument is to be derived from the lowest layers of the silt in this gigantic ditch. In the hopes that further excavation work would be able to be undertaken, the trenches already cut were not filled up, but were left open, a fencing having been erected around this part to protect cattle and horses. The immense original depth of the fosse can thus be seen, as also the conformation of the east side of the entrance-causeway. This should prove of much interest to archæologists.

Application was made at the Australian meeting for a further grant to enable this work to be carried out during 1915, and a sum of £20 was allotted. Owing, however, to the effects of the war, it was found that it would be impossible to secure the labour necessary for the work contemplated, and the Committee felt obliged to abandon the proposed plan of operations. It was recognised, moreover, that the continuance of the war rendered such work inopportune. Nevertheless, a very useful and important piece of work was carried through during the spring of this year. The very careful survey of the Avebury Circle, on a scale of 40 feet to the inch, which had been from time to time plotted out by Mr. Gray during the excavations in previous years, was completed, and has since been carefully mounted by Messrs. Stanford. This will prove to be by far the most reliable and complete plan of the monument, and the portions excavated are accurately indicated upon it, and can thenceforth be located with certainty. A small sum was drawn for this purpose from the British Association grant.

In view of the unavoidable postponement of the important excavation work on account of the dearth of labour and on account of the serious troubles in which the country has been involved, the Committee ask that the unexpended balance of the grant made in 1914 may be credited to them, and that this may be increased to £40 in all, so that the proposed work may, if national circumstances permit, be efficiently carried out in the spring of 1916. Permission is also asked for, as previously, to apply for financial support from outside sources. This is rendered necessary on account of the very extensive excavations which are necessary before the lower strata can be reached. The results so far obtained amply warrant a renewed application for funds for the further exploration of this most important archæological site.

The Avebury Excavations, 1914. By H. St. George Gray.

I. *Introductory Remarks.*

The following account of the work of excavation carried out at Avebury in 1914, under the general direction of the Committee, is a report upon two large cuttings, which, owing to their extent and the great depth of the fosse, could not be completed in the time at my disposal, although the digging was in progress from April 11 to May 5 (exclusive of the time occupied in filling-in that part of the vallum-cutting so far completed). The writer is therefore placed at considerable disadvantage in arriving at any general conclusions, especially as very little of the lower silting has yet been removed from the comparatively large area of fosse which was under examination.

A maximum number of sixteen men was employed, but we were generally working with from twelve to fourteen; one half of them had had previous experience at the Avebury excavations either for one or more seasons. The weather was remarkably fine except during the last day or two, but only an hour was lost owing to heavy rain.

Sectional diagrams of the fosse and vallum were made as the work proceeded, the position of the more important objects being clearly indicated. Twenty-three satisfactory photographs (half-plate) were taken during the season, and these, added to those taken between 1908 and 1913 (which number eighty-six), not only show the progress and chief features of the excavations, but also include general views, together forming a somewhat complete photographic survey of Avebury.

The reports already published* on the excavations at Avebury deal chiefly with the investigations which were carried out in 1908, 1909, and 1911† in the S.S.W. fosse on Lord Avebury's property.

In 1909, as the termination of the S.S.W. portion of the fosse was not located at Cutting III. (close up to the road-hedge), its exact position evidently occurring under the present road into Avebury from Devizes and Marlborough, small trial-cuttings were made on the east side of the road and in proximity to the two large standing stones of the great outer circle. This led to the discovery of the southern entrance-causeway, the line of which is now represented by the small plantation of beech-trees on Major Jenner's property and a small part of the grass-field on Lord Avebury's land between the beech-trees and the two large stones (the portals of the entrance-way into the central area).

As far as the solid causeway could be examined (and the trees were a hindrance to investigation), its ancient surface of solid chalk was reached at an average depth of 1.7 foot below the present surface, and found to be about 24 feet wide.‡

On the east side of the causeway the level of the solid chalk was found to recede gradually as if sloping off to join the upper margin of the end-wall of the S.S.E. fosse, and taking the form of rough, slight ledges not very clearly defined. On the west side such obstacles as the wooden fence, the bank and hedge, and the modern road itself prevented any exact determination of the manner in which the S.S.W. fosse finished and the causeway began.

"The vallum now remaining nearest the causeway would appear to have obstructed the entrance-way from the Kennet Avenue, but this is not really so, for allowance must be made for the silting-down of the material composing the vallum at its end, forming a talus, and for the fact that other beech-trees have been planted in this position, caused obstruction, and gathered round them a certain amount of decayed vegetable matter" (Report, 1909).

The work of 1914 was confined to a very large excavation (Cutting IX.) into the silting of the fosse on the east side and against the solid chalk causeway, and a cutting (No. X.) through the greater part of the S.S.E. vallum. The crest of the vallum in the position of the east end of Cutting IX. is about 31.5 feet higher than the surface of the silting of the fosse, and the latter is 14 feet below the central area (outer circle). There is a decided berme between the fosse and vallum in the position of the 1914 excavations.§

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* "Brit. Assoc. Reports," 1908, pp. 400-413; 1909, pp. 271-284; and 1911, pp. 141-152.

† The work of 1912 was confined to making the greater part of a survey plan of Avebury, which will be completed this year (scale 40 ft. to the inch).

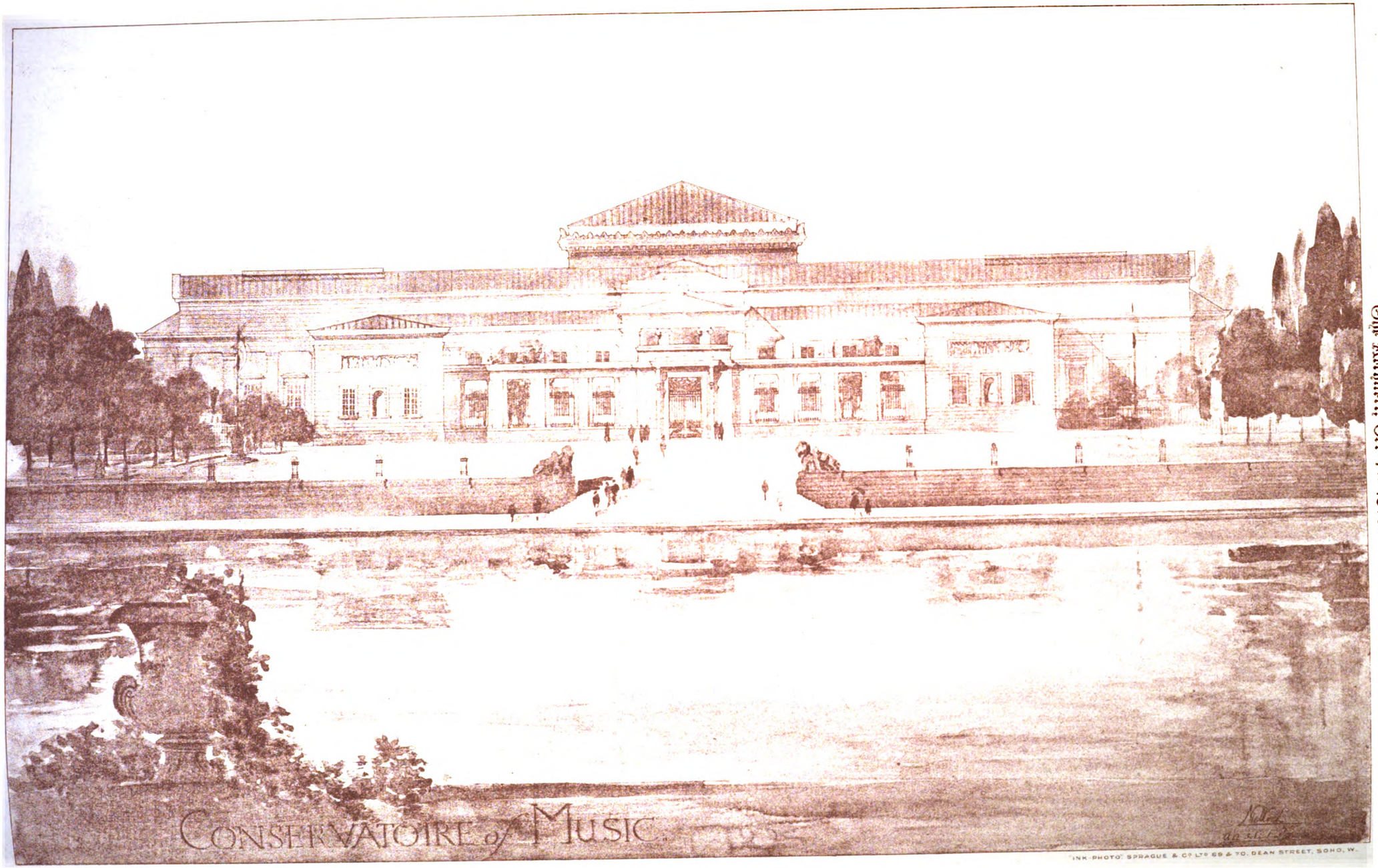
‡ 24 ft. is the distance which exists between the two remaining standing-stones of the great outer circle at the entrance to the central area.

§ This berme was noticed by the Rev. A. C. Smith in "Guide to the Antiquities of the North Wiltshire Downs," 1st edit., 1884: "The rampant for a considerable portion of its circuit shows an apparent terrace or 'berme' half-way up its side, though this is in reality only the original level of the ground upon which the excavated earth from the fosse was thrown up."

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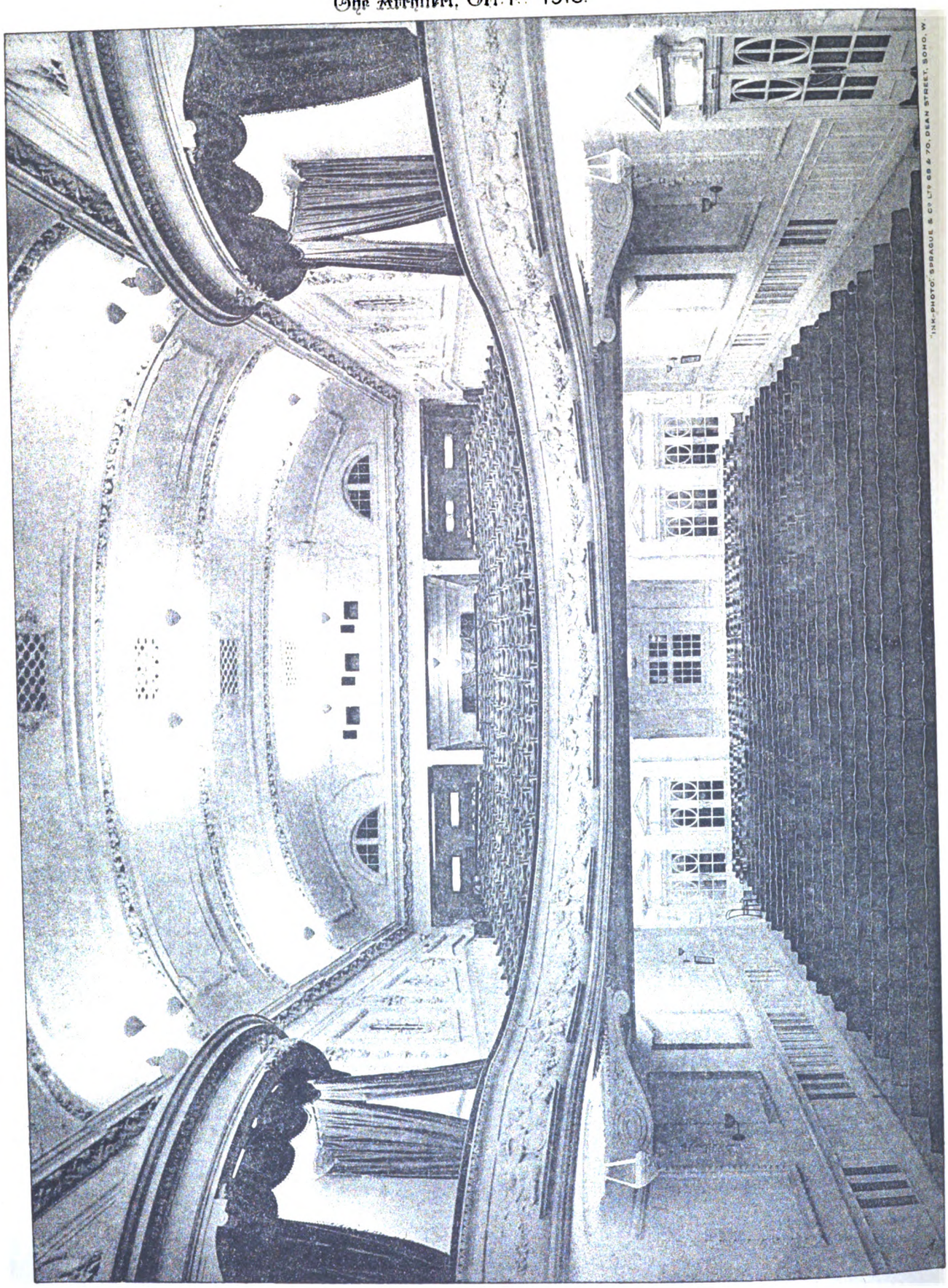


ARCHITECTURAL ASSOCIATION SCHOOL OF ARCHITECTURE.—DESIGN FOR A CONSERVATOIRE OF MUSIC.
By Mr. NIEL KOCH.

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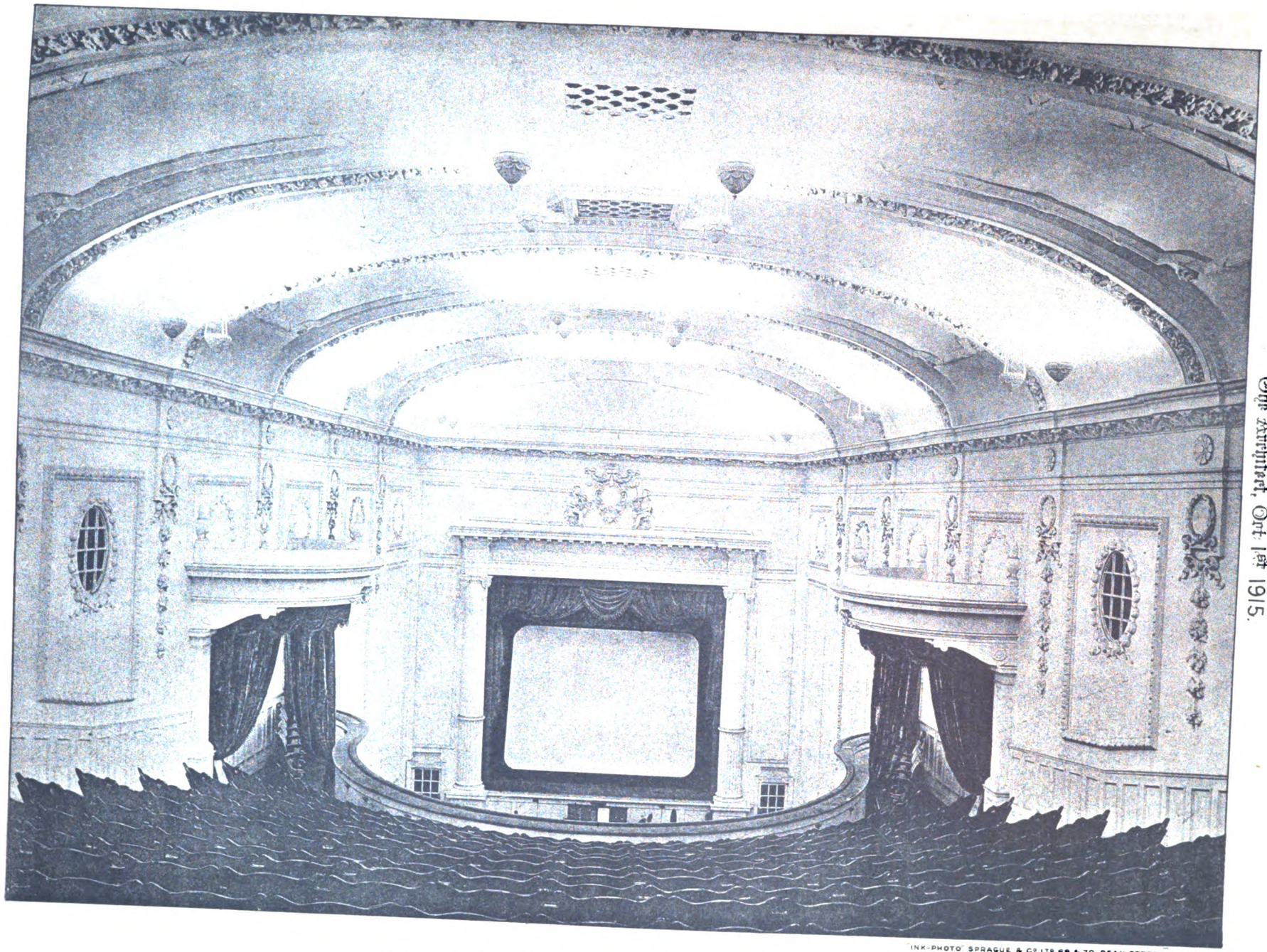


THE CARLTON CINEMA AND RESTAURANT, SWANSEA.

Mr. CHARLES T. RUTHEN, Licentiate R.I.B.A., Architect.

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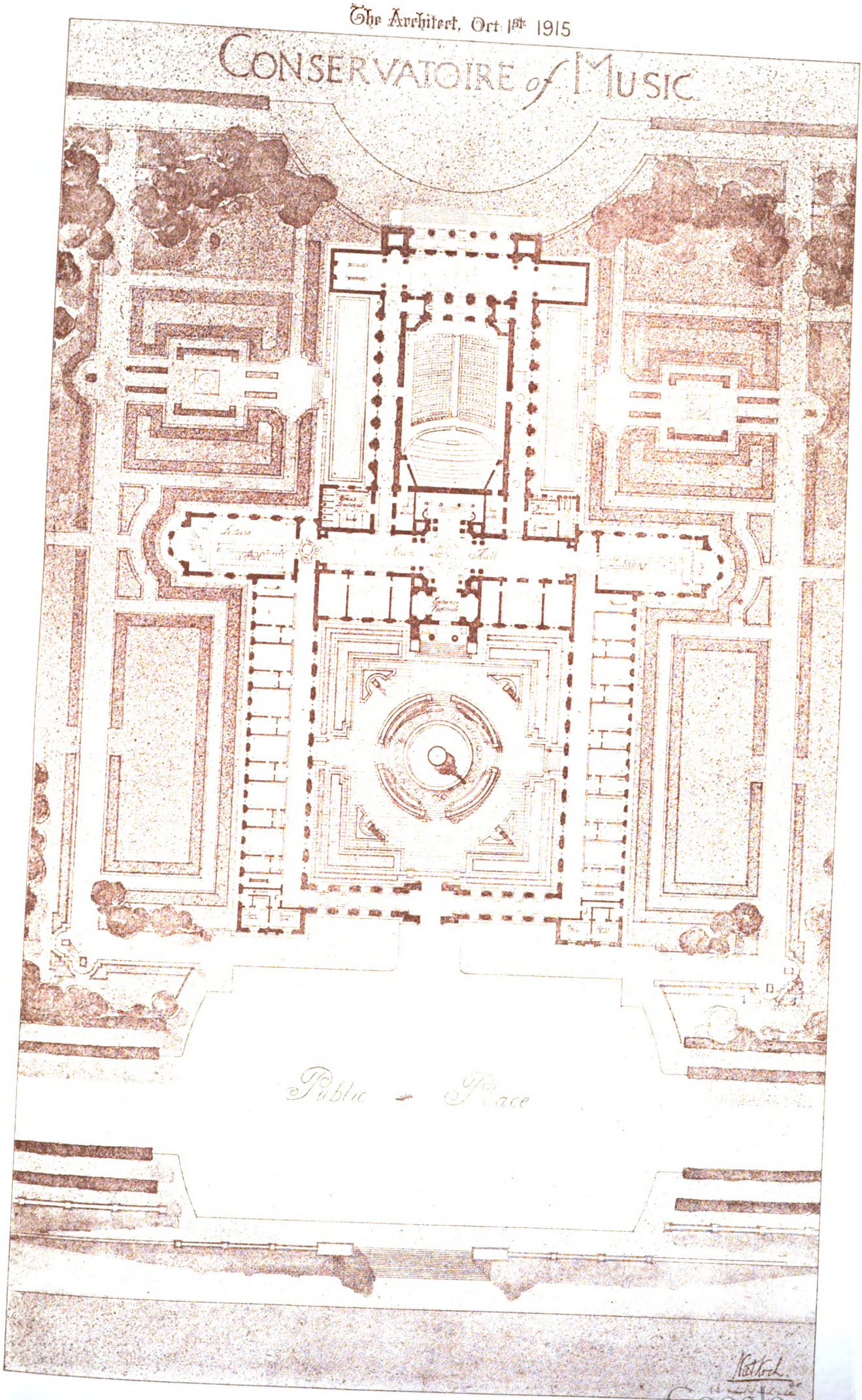
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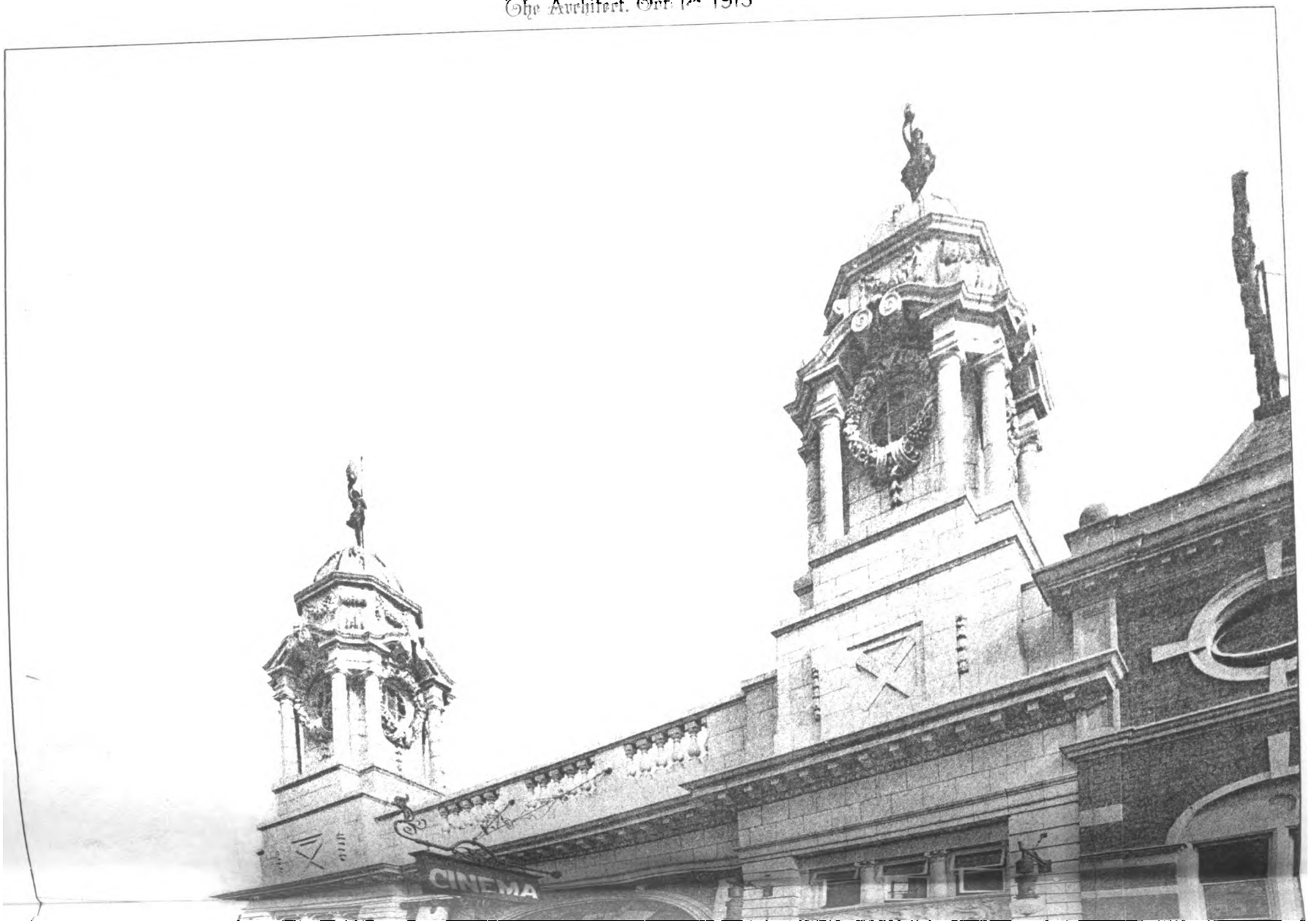
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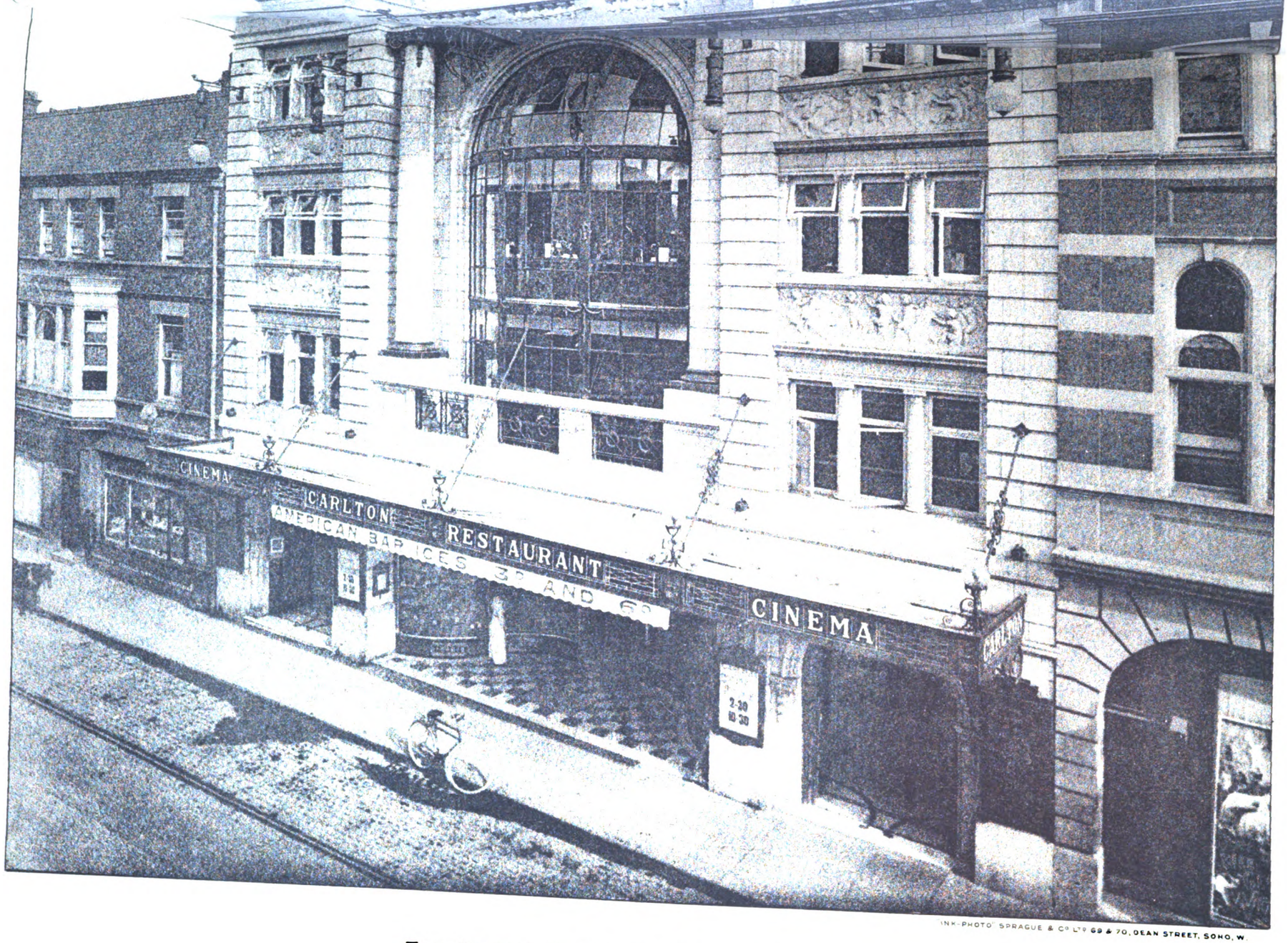
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II. *General Observations on Cutting IX., through the S.S.E. Fosse,* 1914.

The fosse excavation marked out for examination measured 44 feet in length, and the width was regulated by the line taken by the escarp and counterscarp of the fosse. This part of the ditch being near the road had been used as a receptacle for all manner of rubbish and pots and pans, all of which had in the first place to be cleared, together with the stumps of many bushes. Then, with the owner's permission, four young trees of some fifteen years' growth were removed from this position and transplanted. Afterwards in the removal of the silting, even at considerable depths, the work was much impeded not only by the roots of the bushes and young trees, but also by those of many of the larger trees growing on the causeway.

The first week was devoted to the removal of comparatively recent silting at the end of the fosse and along the eastern margin of the causeway down to the level of the surface of the silting at the east end of the cutting. On the completion of this work the true and enormous dimensions of the upper margin of the fosse and its termination against the side of the causeway was revealed.

From the summit of the ancient entrance (eastern margin) to the brink of the true fosse—a distance of about 18 feet—the solid chalk was found to fall gradually, with slight ledges cut at intervals as previously mentioned. From the brink, the solid chalk profile of the fosse—in other words, the eastern face of the causeway—dipped downwards at an angle of 61°, its upper margin being nearly straight (and square with the line of the fosse), with a slight concavity towards the west. Following the brink of the fosse in this part it was found that its upper margin had a maximum width of 45 feet. From the true margin of the fosse at the west end a depth of 6.5 feet of silting had to be removed before the level of the surface of the silting at the east end of the cutting was reached.

In re-excavating the successive strata the same arrangement of concave seams of silting were met with as in the fosse cuttings described in the former reports. Almost needless to say, there was found to be a greater depth of mould and mixed silting at the west end than at the east end of the cutting, but an average section of the fosse showing the nature of the silting cannot be delineated until the remaining layers of silting have ultimately been removed.* It is estimated that about five-eighths of the silting in this large cutting were cleared out at the close of the season's work.

After an infinite amount of patient labour a length of 4.25 feet of the original floor of the fosse, at the west end and against the face of the solid causeway, was uncovered at the enormous depth of 29.5 feet below the brink of the fosse, vertically measured—that is, 35 feet below the top of the ancient causeway and approximately 54.5 feet below the present crest of the vallum. Even with these dimensions it is difficult to realise the magnitude of this part of the re-excavated fosse without visiting the site.

The bottom of the fosse in the part already uncovered was found to be fairly level, the width on the line of the causeway being 13 feet. The lower 7 feet of the end-wall was inclined at an angle of about 71°.

In the N.W. and S.W. corners of the re-excavated fosse were two shallow channels, or "shutes," which appeared to be artificial and cut for a special purpose in the chalk wall; or they may be due to an unsuccessful attempt to square or round the corners uniformly. The channel on the N.W. extended from top to bottom of the fosse (tailing out at the bottom). That on the S.W. stopped about 12 feet below the brink of the fosse, and was crossed by two or three slight ledges in the lower half.

III. *Human Remains found in the Silting of the Fosse.*

At a distance of 17 feet from the east end and in the middle of the cutting, a contracted human skeleton (No. 214), fully adult but of small size, was uncovered at a depth of 5.8 feet below the surface of the silting. The unexpected discovery was made in mould with very little admixture of chalk, at a time, unfortunately, when the surrounding ground, owing to a drizzling rain, was sticky and slippery. Mr. Gray's absence at breakfast was also unfortunate, and on his return several of the bones had been removed and the skull had evidently been trampled upon before any part of it was actually seen by the workmen engaged at this spot. Some of the bones had been thrown back; these, however, were collected, the picks were set aside, and the clearing of the interment and the surroundings was then carried out by Mr. and Mrs. Gray, with the assistance of one man. It was seen at once that the skeleton, although the bones were in sequence, was in a decidedly bad state of preservation, and the bones had considerably decayed in many instances. The flexed knees touched a large sarsen stone and the head was to south. The long-bones were much decayed, with the exception of the right tibia, which, however, was fractured; it was carefully measured in the ground, the length being 286 mm. (11¼ inches), which, adopting Topinard and Rollet's formulæ and taking the mean, gives a stature of only 4 feet 3.88 inches for a female. She must therefore be classed as a dwarf.

The skeleton was surrounded by twenty-three sarsen stones (measuring from .6 inches to 24 inches in length), not arranged by symmetrical order, but covering a roughly oval area about 7 feet by 4 feet. One of the stones appeared to be half a ring-stone.

The calvaria of the skull was repaired as far as possible and has been examined by the kindness of Professor W. Wright, F.S.A., who reported that the cranium was evidently of oval shape and of considerable but not extreme length, and that the skull belonged to an individual probably over thirty years of age and of the female sex.

Three human mandibles were found near the skeleton and at a slightly greater depth, and another in the N.W. part of the cutting. Between these remains and the human skeleton (No. 214) the chin regions of the mandibles permit of comparison. Professor Wright reports that "they suggest a close relationship between the individuals, for they bear a close resemblance to each other. The chins, moreover, are strong and firm. The shape of the cranium in being long is in order, but it was probably not as long as the very long ones found in the chambered long-barrows."

Associated with the human skeleton, a few unimportant antiquities were found.

IV. *Deposits of Burnt Material from the Fosse.*

At a distance of 0.5 feet below the skeleton a patch of dark material was reached, consisting for the most part of burnt mould. This was found to extend to a depth of 7.5 feet below the surface of the silting. The deposit was more or less in the shape of a mound of about 3 feet in diameter, and it was evident that a fire had been kindled on the spot. The dark area was divided by a seam of 0.2 feet of mixed mould and fine chalk at about 0.75 feet from the top of the dark patch. Below the dark material yellowish-brown mould occurred, followed at a greater depth by chalk rubble.

In this dark material a few objects were found.

V. *Picks and other Remains of Red-Deer Antler, found in the Fosse (Cutting IX.).*

As in former seasons, picks of red-deer antler were found in some numbers in the chalk-rubble, and especially near and on the floor of the fosse. Picks of this type have also been found in Britain in considerable numbers at the Grime's Graves, Cissbury, and Maumbury Rings, and in smaller quantities at many other places, generally with prehistoric remains, but occasionally on Roman sites. Portions of antler picks—one piece being smoothed and charred at the handle-end—have recently been found in the great artificial mound at Marlborough College. Two very large antler picks found in the excavations at Avebury in 1894 were disposed of in April 1915 at the Meux sale at Dauntsey House, near Swindon, and were acquired by the Wiltshire Archæological Society for Devizes Museum.

Twenty numbered specimens were found in the fosse in 1914.

VI. *General Observations on Cutting X., across the Vallum,* 1914.

This cutting, measuring 15 feet in width, was made on the S.S.E. and within easy distance of the fosse-digging—so that the two excavations could be watched simultaneously. At this point the vertical height from the surface of the silting of the fosse to the crest of the vallum was 32.65 feet, and from the middle of the berme to the top, 14.4 feet. About one-half of the berme was included in the excavation which extended southwards as far as the summit of

* In the lower chalk-rubble silting in Cutting IX. there were occasional seams of mixed silting (fine chalk with some mould) which was much compressed and difficult to break up. There were more narrow seams of mould in the chalk-rubble in this cutting than in the others previously excavated.

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the vallum, the length examined being 50 feet. The outer part of the vallum, comprising a length of 30 feet, remains to be excavated.

The whole of the body of the rampart was found to consist of chalk-rubble with very little admixture of mould (in the form of seams). The old turf, or surface, line (humus), and the dark brown material immediately below it were found to be very clearly defined, and measured on an average 3.5 inches in thickness throughout the cutting. It ran almost level, and was reached at a depth of 14 feet below the crest of the vallum.

Upon this ancient material Mr. Clement Reid, F.R.S., who has examined a dried lump, has reported as follows: "Brown silty clay, with small splinters of flint and minute fragments of charcoal. The matrix is mainly an insoluble residue from the chalk, with the usual dark stain of mixed oxides of iron and manganese. It contains also some very fine quartz-sand, probably derived from Tertiary deposits. It is scarcely a soil, though it shows small roots; it is a subsoil into which some charcoal has been kneaded. It corresponds with the 'clay-with-flints.'"

Samples of charcoal found in considerable quantity on the old surface line were also sent to Mr. Reid to be examined, and, like the pieces from the fosse, proved to be beech.

VII. *Relics found in the Vallum (Cutting X.).*

A number of relics were discovered on the ancient surface and elsewhere. Several of the fragments of pottery, mostly very small, were recovered from the old surface by breaking the mould up in the hands and sifting. Flint flakes were very plentiful; metals were conspicuous by their absence. One of the most interesting specimens is a finely worked bone pin. A fourpenny-bit of William IV., 1836, was found near the foot of the interior slope of the vallum in the turf mould, depth 0.4 foot.

ROMAN RIBCHESTER.

A few days ago there was inaugurated at the quiet Lancashire village of Ribchester a museum of Roman antiquities which has been recently built and formed by local enthusiasts, and is now handed over to the National Trust. The occasion brought together a distinguished gathering of scholars under the chairmanship of Sir Frank Forbes Adam, chairman of the Council of the University of Manchester, and included a large number of members of the archæological and classical sections of the British Association. Among the speeches the most important was that by Professor F. Haverfield, LL.D., F.B.A., Camden Professor of Ancient History at Oxford, who was introduced by the Chairman as the most prominent authority on Roman Britain.

Professor Haverfield observed that one of the main characteristics on which Roman organisation and government of a province rested in the disturbed areas and frontiers was the small fort or castellum. They varied in size from three to six acres, and were scattered over the whole of the north from Chester to Carlisle, and from the vale of York to Tyneside. Wherever there were hills and a strategic point they would find one of these forts, which was purely a military unit, and was not a town like our modern towns which were garrisoned by troops. These forts practically formed the means by which the Romans controlled the country, very much as the small fortresses scattered up and down England formed the means by which the Normans were able to consolidate their conquest of England after 1066. Some of these forts were along the Roman Wall. A few were north of it; many guarded the land south of it. They were all much the same—square or oblong in outline, three to six acres in area. They were purely military.

Strategically, their use rested on the assumption that the enemies of the empire would come against them in scattered bands, and not in large bodies of hundreds of thousands of men, and that the defence under these conditions of military warfare was much stronger than the attack. Nevertheless, the system broke down, the barbarians arrived in hordes of enormous numbers, isolated forts fell and were destroyed, and the greatest of ancient military empires made a serious blunder in its higher war strategy. That was one of the reasons why the early Roman Empire fell.

Of such forts North Britain contained perhaps fifty or sixty, not necessarily all in use at once. Faint vestiges of one still stubbornly survived in a corner of Manchester; another, larger and more important, was there at Ribchester It guarded a crossing of the Ribble from north to south It guarded also the entrance to the Ribble estuary, and the passage up the valley inland, and the low hills by which one could penetrate the Pennine range from Blackburn to Todmorden, to Skipton, to Ribblehead—all three easy passages for the Irish. The Irish were a trouble to the Romans in this country, as they had been at a more recent date. The Romans did not make an attempt to conquer them, and that perhaps was one of the proofs of their sanity. The Ribchester fort was built about the end of the first century, somewhere in the lifetime, and possibly during the governorship, of Agricola. It was held, with various reconstructions, to the very end of the Roman period. It was large and strong, but little was left of it now; one large piece, indeed, had been washed bodily out by the Ribble. In a field just west of the churchyard a grass-grown bank and mound marked its former western limit. Here some useful excavations were made twenty years ago by Professor Garstang. More lately Miss Greenall, in building her house, discovered parts of what might be called the headquarters building, right in the centre of the fort, and coerced her architect into preserving them in situ, and encouraged excavation. Professor Anderson, of Manchester, and Mr. Donald Atkinson had been able recently to recover the plan of the headquarters building nearly whole. There was more to do some day.

Dr. Haverfield went on to speak of the machinery by which Rome kept safe her conquests and preserved an empire for 400 years. It was not an empire of war; the Roman Empire was one of peace internally, and though Ribchester was a military work, its task was not to encourage militarism. The forts were not made to keep down the population. No empire of which he knew had ever flourished that did this. Their work was to keep out from civilissd lands the invading Moors and Arabs and Huns. In regard to the finds in the museum at Ribchester, there was good cause for hope that they would be well kept. The distinguished Latinists who were among the ornaments of Manchester University, with the aid of the vigorous Manchester Classical Association, had in hand both the exploration of the site and the museum. This was a notable step. Till a few years ago our universities—his own of Oxford was no exception—cared very little for the local and national antiquities of our country, and very little for archæological researches, save perhaps in Greece. To-day we found a university such as Manchester coming forward, not exactly officially but in effect, to safeguard for its own and for all students the remains of that site.

In a subsequent speech Professor W. B. Anderson remarked that many treasures found on that site had departed to various places in the country—many of them quite distant. They could not perhaps hope that the British Museum or St. John's College, Cambridge, would see fit to return their Ribchester treasures to the museum which was their proper home, but it might be suggested to some persons or institutions nearer home that they might consider the possibility of entrusting to the safe keeping of the museum such Ribchester relics as they might have in their possession. The Excavation Committee deeply appreciated the co-operation of the Ribchester community in the work. There was still a little more to be done, and they hoped the necessary financial aid to carry on the work would soon be forthcoming.

BOLLING HALL, BRADFORD.

The Bradford Corporation a few years ago acquired Bolling Hall, a fourteenth-century residence, together with its estate. As the building had been allowed to fall into a state of disrepair, it was necessary to carry out some restoration before it could be converted into a museum. This work having been completed, the Hall was formally opened last week. An interesting account of the building appears in the "Yorkshire Post." From this it appears the oldest portion of the building is certainly in the fourteenth-century style. There are traces of alterations made in the fifteenth century, the north-west wing of the building is of the sixteenth century, another part of the seventeenth century, the eighteenth century is represented by further alterations and internal additions, and the early nineteenth-century style is seen in a portion which was rebuilt after a fire.

The Hall passed by marriage from the Bolling family to the Tempests, later to the Saviles and Lindley-Woods, and from the latter family to the Bowling Iron Company. A

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division of the property of that company resulted in a Mr. Mason, one of the syndicate, acquiring the estate, and from him it was purchased subsequently by Mr. G. A. Paley, of Ampton Hall, Bury St. Edmunds. The last tenant to occupy the whole of the premises was Mr. J. M. Tankard, a member of a well-known Bradford family. After he left in 1888 the Hall was divided into tenements, and was in a fair way to a worse fate when, fortunately, it came into the hands of the Bradford Corporation. About three years ago the Corporation were negotiating with Mr. G. A. Paley for the purchase of a certain part of the Bolling Hall Estate, when Mr. Paley, by way of striking a bargain, said that if the Corporation paid the price he asked for the land, he would throw in the historic Hall. Some were opposed to the proposition, but, fortunately, the idea of retaining this relic of former days was approved by the majority of the City Council, and on September 22 the Hall was formally opened as a public institution. It will in future be used as a museum for the preservation of anything connected with the history of Bradford and district.

The Hall was in a dilapidated condition when it passed to the municipal authority, but the delicate work of restoration has been carried out by the City Architect, Mr. W. Williamson, with a care and fidelity demonstrating far more than mere professional interest, whilst valuable assistance has been rendered by Mr. Butler Wood, the Bradford City Librarian, who is an authority on local antiquities. The result of the efforts of these gentlemen is that Bolling Hall now stands a splendid specimen of an ancient residence, whilst an additional charm has been given to the surroundings by laying out the gardens in the Jacobean style.

In the work of restoration no structural alterations have been made. The building was for the most part in a sound condition, and the principal task has been to remove excrescences. Fine old rafters in the ceilings, some of them carved, were found covered with plaster. Some of the best rooms had been divided by unromantic brick walls. Magnificent sixteenth-century fireplaces had been bricked up, and modern fireplaces inserted, whilst in several instances windows had been built up. The object of the restorers has been to reveal the Hall as originally erected at the various periods, and there has been no necessity to make substantial structural alterations or erections. The old fortified tower, formerly, no doubt, used as a manor house, is built in the fourteenth-century style, and is of three storeys, though the kitchen in the rear is attributed to the sixteenth century. The fifteenth century is represented by a wall of some other building, utilised, apparently, when making additions at a later period, and this was disclosed after carefully removing a modern plaster covering. The old oak panelling in this part of the building is in splendid condition. The large hall in the centre of the building, with a balcony leading to the bedrooms, is of the seventeenth-century period, though the panelling here is early eighteenth century. The glass window in this hall is new, but care has been taken to insert in the leaden frames such fragments of old glass as have been discovered. It is from the balcony in this hall that admittance is gained to the "Ghost Chamber," the bedroom associated with the legend recorded below. It is one of the show places of the Hall, and is in a remarkable state of preservation. This applies not only to the superb Jacobean carved fireplace, but also to the ornate plaster ceiling and the deep cornice. According to popular legend, the Royalist troops under the Earl of Newcastle, after defeating the troops of the Commonwealth at Adwalton Moor in 1643, marched to Bolling Hall, where they spent the night. The Earl announced that because of the strenuous resistance offered by the Bradfordians, their town would be sacked the following day, and the inhabitants given over to the sword. The people, in consequence, spent a wretched night, and the legend tells how they were saved by a ghost. It is said that during the night a female apparition was seen by the Earl, and—

> Mournful she seemed, though young and fair,
> She clasped her hands as if in prayer;
> And, sighing, she said, "In pity spare
> Our poor devoted town."

A more materialistic version is that one of the servants of the household, having heard of the threat, sought audience of the Earl, and pleaded for her father and mother, with the result that she saved the town, the order for its destruction being withdrawn.

One feels a marked change of atmosphere in passing from the solidity and strength of this fourteenth to seventeenth-century architecture to that of the early nineteenth century, in which style the portion destroyed by fire was rebuilt. It is dainty, clearly indicating the influence of the brothers Adam, whose decorative work was then much in vogue, but it is not nearly so satisfying as the more ancient architecture. At the extreme end of the Hall is a portion probably not burnt down by the fire where we get back to the seventeenth-century style, and it is taken as evidence that the building was completed in 1615, because that year is set forth over a fireplace in one of the bedrooms.

At present Mr. Butler Wood is busy filling the rooms with furniture, &c., in harmony with the surroundings, and there is promise of an interesting collection before the date of opening. The Bradford municipal authority has certainly done well to acquire this ancient building, for it is unquestionably one of the most interesting associations with the past to be found in the district.

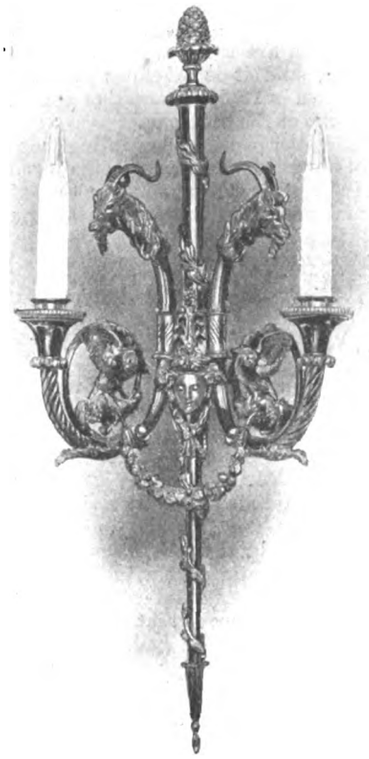
GLASGOW BUILDING TRADE, 1914-15.

The effect of the war on the local building trade during the past year, and the probable reaction on the Glasgow district of the vast amount of reconstruction work that will be necessary in the devastated areas of Europe when peace comes were referred to by Mr. J. D. Hedderwick, Dean of Guild, in submitting the annual statement at a sitting of Glasgow Dean of Guild Court on the 23rd ult.

The Dean of Guild said that the magnitude and ramifications of the war had interfered with every interest and upset all ordinary conditions, and had affected the work which came under the purview of that Court so considerably that the figures of the year which had come to a close could not be compared with those of preceding years as advantageously as usual. With the conditions which had obtained it was not to be expected that the increase of work which showed itself in the second year of the extended city would be maintained during the third year just closed. But in the figures of the past year the decrease in the total work was not so great as one might have prophesied in August 1914. To a large extent that had been due to the increased requirements of Government contractors, and in a lesser degree to the operations of the School Board and the Corporation. One somewhat remarkable feature was that whereas under the prevailing conditions the bulk of the work might have been expected to be merely alterations or additions and not new buildings, yet the former class of work showed a decrease of about 70 per cent. from the previous year, and reached the lowest figures since 1889-90, while the new work showed a decrease of only about 12 per cent. In the year that had just closed the number of linings had fallen to 381, estimated to cost £816,636, against 542 linings costing £1,052,147 in the previous year. In that sum of £816,636 no less a sum than £753,842 was for new work, and only £62,794 for alterations and additions.

Mr. Hedderwick gave details of the linings granted. He said that for public buildings there were thirty-six linings, twenty-one being for new buildings and fifteen for alterations and additions, representing respectively £184,075 and £6,575. In these figures were included the figures for three picture-houses. In the previous year the valuation of picture-houses authorised was £57,523. In the previous three years the average valuation for picture-houses was £45,706. In the year under review the valuation had dropped to £5,536. From that they might conclude that the supply of that form of amusement was meeting the demand. There were twelve linings for new streets, the same number as in the previous year; but whereas the twelve linings of 1913-14 represented a length of 6,216 yards, those of the past year represented only 2,971 yards. In contrast with those of the previous year, this year's figures showed there were decreases of £169,889, £85,924, and £14,582 respectively in the work authorised as regards (1) warehouses, shops, and offices; (2) workshops, &c.; (3) churches and halls; whereas there were increases of £51,983 as regards schools and £2,163 as regards public buildings. There had again been a fall in the value of the linings in connection with houses and shops, the figures of the past year showing a decrease of £9,141 under the figures of 1913-14, which in turn showed a decrease of £24,864 under the figures of 1912-13. For the figures as to houses and shops the city was divided into sixteen districts. For the three districts comprising Partick the valuation of the linings granted for new work was £62,422, and for alterations and additions £579. The three districts comprising Queen's Park, which had in recent years taken the foremost place, came second with £23,210 and £1,794. The two districts of the Eastern division came third with £21,528 and £977.

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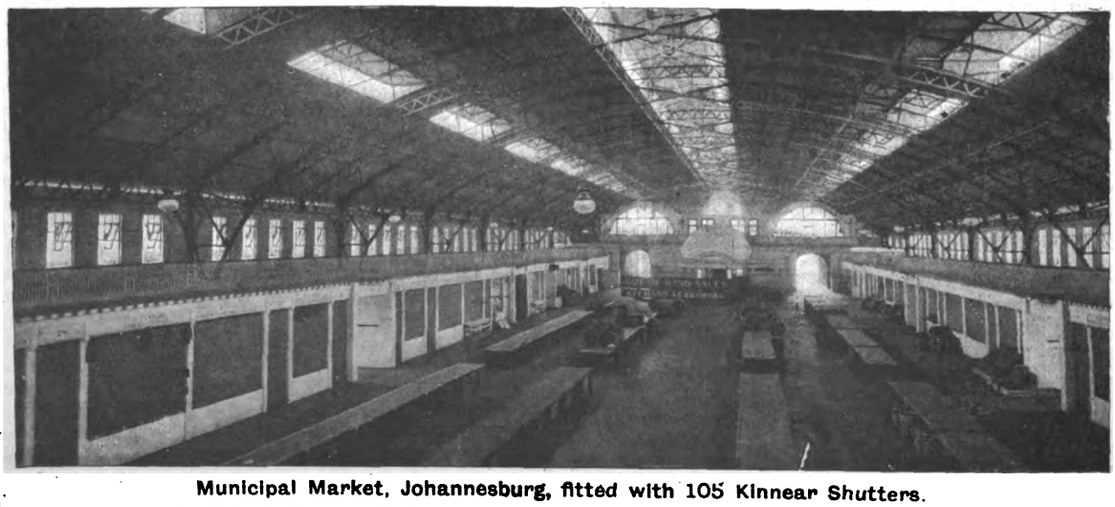
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In 1912-13 there was only one house of one apartment authorised. In 1913-14 there were fifteen. In the past year there were sixty-three. So long as such houses conformed to the building regulations the Court could not interfere. The objections to such houses were obvious. The remedy was not so plain. It was a somewhat difficult problem. Personally he regretted that the social condition was such as to make these houses inevitable. And yet in large cities there were always likely to be a number of single persons who did not want more than one room. As an instance of that point, he saw it reported that in a large building enterprise promoted by a benevolent London body, apparently with the approval of the building authority of the City, a feature of a scheme of five blocks of buildings five storeys high was the provision of one-roomed houses, each with a hot-water tap. It was worthy of remark that the one-roomed houses authorised by the Court during the year were all being erected by the Corporation. Remembering the strong objections expressed in the past to such houses, he could only conclude that it had been found necessary to satisfy a legitimate demand for such limited accommodation. He could only hope that the time was not far away when the dangers and difficulties involved in the existence of one-apartment houses and house properties of four or five storeys high would be taken in hand and solved. In the past year there were authorised 156 houses of two apartments, 120 of three, thirty-two of four, thirty-five of five, and forty-eight of six and more apartments. Seven single and three double shops were also authorised. A very remarkable reduction had taken place in the number of unlet houses during the year ended Whit-Sunday 1915—i.e., from 18,341 to 13,178, a reduction of 5,163. The average rental of unlet houses in the previous year was £14 4*s.* 4*d.*; it was now £14 6*s.* 8*d.* Of the houses still unlet many were pretty certain to be of an old and unattractive type. New small houses were always in demand, but builders were not likely to supply more of them in the uncertainties caused by recent and possibly further legislation, and now less than ever owing to higher costs of construction.

From what had come before him in his year of office it seemed clear that steel and concrete construction of buildings of any consequence must increase in volume. It was, of course, quite possible that out of the chaos which now existed in Europe there would be a turn in civilisation which, bringing about a change in conditions affecting many things, might result in considerable changes in the art of construction. But it appeared to him that steel and concrete construction in one or other method would play a part continually more and more important. Probably there lay before architects and builders opportunities of marked advance in that field. It was probable that the incalculable destruction of every kind of property now proceeding throughout Europe would create an unprecedented demand for materials, labour, skill, and money which would severely strain the whole world of business after peace came. High costs, dear money, and disturbed conditions of labour might to some extent retard reconstruction, but it seemed probable that no small amount of absolutely essential reconstructive work in the ravaged countries would have to be done soon, and very largely irrespective of cost. While the need for reconstruction would be widespread, and not likely to touch us here directly, the effect of it all might act adversely for many a day on the work of the Glasgow Dean of Guild Court.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

A.A. Red Cross Voluntary Aid Detachment.

Sir,—Will you kindly allow me to call attention to the Red Cross Detachment which has now been formed in connection with the Architectural Association? To complete the full strength of the detachment, further recruits are still required. Anyone who holds First Aid Certificates granted by any recognised authority will be welcomed to membership, and it will be possible to accept as probationers a few applicants, who have had no previous training, to qualify for full membership.

It is anticipated that the services of this detachment will be in considerable demand, and those wishing to join or obtain further particulars should communicate with me.

F. R. Yerbury, Quarter-Master.

The Architectural Association,
18 Tufton Street, Westminster, S.W.: Sept. 17, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Buckinghamshire.

Amersham.—St. Mary's School: alterations. Messrs. Kemp & How, FF.R.I.B.A., architects, 4 Bloomsbury Square, London.

Taplow.—Four cottages, for Colonel W. W. Astor, M.P.

Cheshire.

Altrincham.—Motor houses, Broadheath, for Messrs. Luke & Spencer.

Northwich.—House, London Road, for Messrs. Holland & Sons.

Cornwall.

Camborne.—No. 9 Centenary Street: addition, for Mr. McAlister.

Workshop, Trelowarren Street, for Mr. E. W. Rogers.

Troon.—Houses: additions, for Mr. J. Berryman.

Cumberland.

Carlisle.—Open-air school. Borough surveyor.

Derbyshire.

Swadlincote.—The Empire Picture Palace, West Street: alterations, for Mr. C. McCann.

Durham.

Darlington.—Picture Palace, Harley Hill. Messrs. Clayton & Kellett, architects, High Row Chambers.

Hebburn.—Proposed church, High and Quarry Roads.

Essex.

Dagenham Dock.—Extension of works, for the Nitrogen and Carbide Company, Ltd.

Saffron Walden.—Slaughter house, Church Street, for Mr. B. Dix.

Gloucestershire.

Bristol, North.—Public Baths, Gloucester Road, Horfield. City engineer.

Hampshire.

Aldershot.—Extensions, Hallmote and Station Roads, for the Aldershot and District Traction Company, Ltd.

Isolation hospital: proposed extension (£800).

Isle of Wight.

Blackwater.—Wesleyan Chapel.

Lancashire.

Failsworth.—Proposed technical school.

Oldham.—The King's Picture Hall, Fairbottom Street: extension, for the Albion Picture Hall Company, Ltd.

Walkden.—Technical school: alterations.

Whiston.—Works, Warrington Road: extensions, for the British Insulated and Helsby Cables, Ltd.

Middlesex.

Enfield.—Proposed disinfecting station (£750) at the highway depôt, Hertford Road, for the Council.

Monmouthshire.

Pontypool.—Slaughter-house and stables, for the Council.

Nottinghamshire.

Mansfield.—The Forest Isolation Hospital (£5,000).

Nottingham.—Library buildings. Messrs. Sutton & Son, architects, Bromley House, Angel Road.

Staffordshire.

Chasetown.—Two houses, Rugeley Road, for Mr. Brown.

Two houses, Rugeley Road, for Mr. Garbett.

Warwickshire.

Birmingham.—Business premises, Parade. Mr. W. T. Orton, architect, 7 Waterloo Street.

Factory. Messrs. Crouch, Butler & Savage, FFF.R.I.B.A., architects, 67A New Street.

Worcestershire.

Dudley.—Factory, Highfield and Harper Roads, for Messrs. Bean & Son.

Oldbury.—Church, Tat Bank (£1,900). Mr. S. N. Cooke, architect, King's Court, 117 Colmore Row, Birmingham.

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ENGLAND—*continued.*

YORKSHIRE.

Barnsley.—House, Guest Road, for Mr. I. Lodge.

Twenty houses and a shop, Langdale Road and Clyde Street. Messrs. Dunk & Sons, builders, Victoria Crescent.

Town Hall, Church Street.

Carriage Works, Racecommon Road: additions, for Mr. W. S. Dodgson.

Bentley.—Baptist Church.

Brighouse.—Rosemary Mills, Rastrick. Messrs. Sharp & Waller, architects, 32 Bradford Road.

Gildersome.—Garage, Gildersome Street, for Mr. J. Gilpin.

Knottingley.—"Lyndhurst": additions. Mr. W. J. Tennant, architect, Ropergate Chambers, Pontefract.

Mapplewell.—Seven houses, for Mr. Howcroft.

Ripon.—Girls' Club: extensions (£1,000).

Rossington.—Church. Mr. F. N. Martin, architect.

Rotherham.—Factory, for Messrs. T. H. Watson & Co. (of Sheffield).

Treeton.—Baptist Church.

Wombwell.—House and shop, Hough Lane. Messrs. Ward & Son, builders, Barnsley Road.

WALES.

Aberystwyth.—Bungalow, Portland Street, for the Misses Jones.

Bridgend.—Chapel: additions. Mr. P. J. Thomas, architect, Nolton Street. Mr. Jones, contractor, Coychurch Road (£1,030).

Pontardulais.—Proposed cottage hospital.

SCOTLAND.

Aberdeen.—Motor showroom and workshop, Holburn Street. Mr. G. B. Mitchell, architect, 148 Union Street.

Picture house, Wales Street. Messrs. Sutherland & George, R.I.B.A., architects, 26 Crown Street.

Shop, &c., for the Town Council. Mr. J. Rust, City architect, 224 Union Street.

Steam laundry, Claremont Street: additions. Messrs. Wilsons & Walker, AA.R.I.B.A., architects, 375 Union Street.

Engineering workshop, King Street Place, for Messrs. J. M. Henderson & Co.

Clydebank.—Four cottages, Aberconway Street. Mr. John Taylor (of Yoker), builder.

Eight cottages, Aberconway Street, Westercrook, and extensions of shipyard buildings, for Messrs. J. Brown & Co.

Picture house, Caledonia Street and Dumbarton Road, Dalmuir (1,000 sittings). Mr. W. Inglis, architect, 261 West George Street, Glasgow.

Two villas, Riddell Street, Kilbowie. Mr. J. Logie, builder.

Drumlemble.—Board School: alterations. Mr. N. Macwhannell, F.R.I.B.A., architect, 11 Jane Street, Blythswood Square, Glasgow.

Dunfermline.—Three hundred houses, for the Scottish National Housing Company.

Rothes.—Board school.

IRELAND.

Athy.—Proposed central tuberculosis dispensary.

MR. JOHN BROWN, of Orsett Road, Grays Thurrock, builder, left £27,667.

"A MOORISH GATEWAY" is the title of a watercolour by Mr. John Keppie, F.R.I.B.A., just purchased by the Glasgow Corporation for the civic collection at Kelvingrove. The work is included in the annual exhibition of the Royal Glasgow Institute of the Fine Arts, and is priced in the catalogue at £25. The committee were much attracted by Mr. John Lavery's war picture, "Wounded—The London Hospital, 1915," priced at £1,500, but as they are restricted to an expenditure of £400 on each picture, they were unable to include it in their list. It was agreed that the question of purchasing the picture should be submitted to the Parks Committee.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 4,051. Aug. 17, 1914.—J. T. Whittome, 3 Parkwood Villas, Tavistock, Devon. Combined road sweeping and refuse collecting machines.

14,292. June 13, 1914.—Isak Rasenen, architect, 28 Annegatan, Helsingfors, Finland. Cooking stoves.

17,328. July 21, 1914.—A. F. Berry, 27 Woodville Road, Ealing. Means for controlling the heating effect of electric heating apparatus. And 17,329. July 21, 1914.—Electric heating apparatus.

18,871. Aug. 20, 1914.—Dated under International Convention Aug. 21, 1913. T. J. Madigan, 141 Broadway, New York, U.S.A. Couplings for fluid carrying pipes.

22,566. Nov. 16, 1914.—Edwin Gill, Ivy Dene, Knowl Road, Mirfield, and R. A. Blakeborough, Woodhouse Works, Brighouse. Parallel sluice gate or valve.

22,637. Nov. 17, 1914.—C. L. Burdick, 4 Eastern Road, Wood Green, N. Stippling pens.

19,926. Sept. 18, 1914.—A. E. Wheeler, Victoria Works, Battersea Park Road, S.W. Valve or regulator.

20,751. Oct. 9, 1914.—William Rich, 24 Wapping, Liverpool. Systems or apparatus for indicating fires in compartments or rooms or spaces at a distance.

4,824. March 29, 1915.—A. N. Low, 78 Merkland Street, Patrick, Glasgow. Valves.

5,505. April 12, 1915.—A. H. Corn and Edward Johns & Co., Ltd., Armitage Sanitary Pottery, near Rugeley, Staffs. Lavatory, sink, or urinal basins and their attachment to walls.

9,534. June 30, 1915.—E. B. Openshaw, 5 St. George's Crescent, Eccles Old Road, Pendleton, Manchester, and Henry Sidebottom, 75 Hawthorn Road, Chorlton-cum-Hardy, Manchester. Back cheeks or false backs for domestic and like firegrates.

3,365. March 2, 1915.—Dated under International Convention March 2, 1914. Edmond Pamart, 234 rue Championnet, Paris. Boilers for supplying hot water or steam for heating purposes.

19,360. Sept. 2, 1914.—A. N. Lidell, Henry Sletten, H. A. Steuck, and H. G. Haase, 1,516 Tenth Avenue South, Minneapolis, Minn., U.S.A. Apparatus for sinking foundation tubes and for other purposes.

19,417. Sept. 4, 1914.—Isaac Shone, 5 Gwendolen Avenue, Putney, S.W. Ascertaining the condition and working of sewerage interceptor traps, tanks, or vessels.

21,095. Oct. 16, 1914.—A. E. Terry, Novelty Works, Redditch. Fastener for window sashes.

22,395. Nov. 12, 1914.—Percy Pickering, 483 Killinghall Road, Bradford, Yorks. Method of reinforcing and jointing together in standard lengths concrete roof gutters.

23,511. Dec. 4, 1914.—W. C. Farren, 67 Henry Street, Sheffield. Chain or flexible saws.

3,703. March 8, 1915.—Bristowe & Co., Ltd., 11 Tothill Street, Westminster, S.W., and H. L. Dale, 60 Queen Victoria Street, E.C. Improvements in connection with tar boilers for raising barrels of tar thereonto.

Any of the above specifications may be obtained from J. D. Roots & Co.

MESSRS. J. BERRY & SONS, of Huddersfield, were the architects for the new Honley Urban District Council offices and for the enlargement of Honley Bridge, both of which improvements were thrown open to the public last week. The total cost of the two schemes has been £7,500.

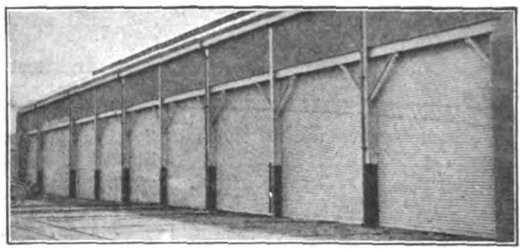
AT the recent annual conference of the Association of Municipal Authorities of Ireland, held in the City Hall, Dublin, Mr. George L. O'Connor, C.E., read a paper on "Some Aspects of Town Planning," in which he said that they in Ireland were handicapped by not having the advantage of the Town Planning Act, which had proved of immense benefit to cities in Great Britain, but he trusted that in the very near future, when this terrible war had ended, Ireland would be in possession of her own laws, and the Town Planning Act would be one of the first to be put in force. At the conclusion of the meeting the following resolution was unanimously adopted: "That a special committee be appointed to obtain particulars of the powers received under local Acts by the principal municipal authorities in Great Britain, and to report to this Association with a view to taking steps to have embodied such powers as would be suitable to Ireland in a general Act of Parliament to be introduced as a Government measure."

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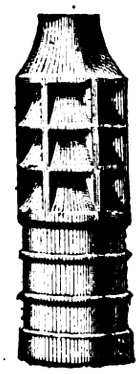
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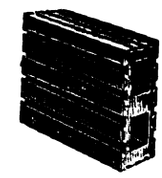
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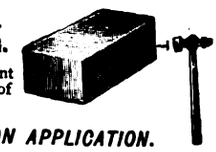
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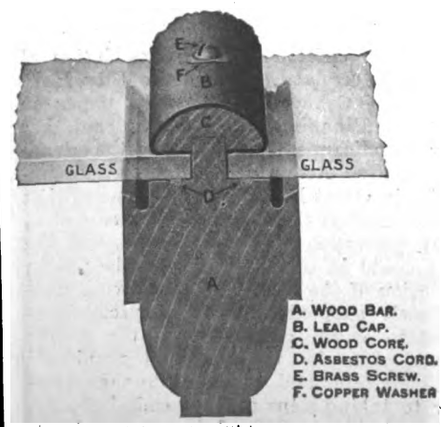
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, October 11.

London School of Economics : Paper entitled "The Care of Archives—from the Twelfth to the Twentieth Century and Onwards," by Mr. Herbert Hall, at 5 P.M.

University Extension Lecture II. on Renaissance Architecture at Victoria and Albert Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Thursday, October 14.

Society of Architects : Special General Meeting, at 7.30 P.M.

University Extension Lecture III. on Ancient Architecture at the British Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

APPRENTICESHIP.

It appears to be generally admitted that: (*a*) There will be a shortage of skilled labour in the building trade whenever the trade becomes really busy; (*b*) that the training of apprentices has not kept pace with the normal wastage that is constantly taking place in the ranks of skilled artisans owing to death and other causes; (*c*) that apprenticeship on present lines is not attractive to either youths or employers, so much so that many employers, especially in large centres, will not take apprentices; (*d*) that such training as is obtainable in technical schools is not, in itself, a satisfactory substitute for apprenticeship.

Modern conditions of life have entirely removed any possibility of the revival of the system of apprenticeship in olden days, when apprentice and employer alike resided on the same premises, whether shop or factory, and the apprentice was, to all intents and purposes, one of the family, and, when industrious, often married his master's daughter and succeeded to the business.

There are now too many openings, often, alas! of a blind-alley character, which to parents and boys alike offer the opportunity of early wage earning. Then the conditions of the clerical employments are more attractive in many ways, more spurious gentility, more liberty, softer conditions of life, particularly as compared with those necessarily inseparable from the building trade.

From the employers' point of view there exists the deterrent that an employer who takes an apprentice is burdened for a term of years with an occupant of space who is unproductive, who spoils material and causes wastage of the time of skilled workers, and for whom he has to make sacrifices for which in all probability others, his competitors in business, will reap the advantage rather than himself. To both employer and apprentice the burden of the system is intensified by the lengthy period that, with the present custom of five or seven years' apprenticeship, postpones the profitable employment of the skilled worker.

It is clear, therefore, that if any real improvement is to obtain, if the benefits of an adequate supply of well-trained workers are to be obtained, some vital change must be made in the present methods of apprenticeship. This educational period must be made more attractive to both the employer and the boy. The only satisfactory way to induce employers to train apprentices is to put them on a paying basis from their point of view.

In a report made by a sub-committee of the National Federation of Building Trades Employers it is suggested that as in the building trades there are classes of work which will not bear a high labour cost, the training of apprentices should be so arranged that they can be profitably employed at first on such work, and subsequently on better work. This might be done by training them systematically in a group system under a competent elderly artisan, whose job it should be to act permanently as an apprentice instructor, his payment to be for that work, and to be to some extent conditioned by results. Jobs should be given these apprentice groups to carry out for which they should be responsible.

The making of apprentice labour profitable for the employer would require care to avoid either actually or apparently the ousting of skilled labour, or trouble with the trade unions would inevitably result. The primary object should be to create a further supply of skilled labour, not to create a fresh class of under-paid labour. Whilst workshop training under a skilled artisan, as suggested, would be desirable, the opportunities afforded by technical schools for the theoretical and explanatory teaching which is essential to the quicker production of a skilled worker ought also to be utilised, and attendance at such schools during the day time should be a recognised part of the apprenticeship system of the future. It is suggested by the sub-committee to which we have referred that the age limit for taking apprentices should be raised to sixteen or seventeen years of age.

Suggestions made for rendering apprenticeship more attractive to boys include the abolition of drudgery, the raising of the starting wage, the starting of work after breakfast, and the making arrangements for comfortable meals, the wearing of overalls, and the provision of washing accommodation so that apprentices might leave their work looking as clean and decent as a junior clerk.

In Edinburgh a scheme has been initiated by which the part played in the good old days by the Trade Guilds is, as regards apprentices, to be taken up by committees under the auspices of the Edinburgh Merchant Company, formed in connection with house painters, carpenters and joiners, plasterers, tailors, plumbers, and printers for the improvement of the training of apprentices. There are twelve representatives on each committee—six employers and six operatives. Meetings are only held when there is business for them. After the formation of a committee employers are asked to register their apprentices, schedules of particulars being sent out for that purpose. The information obtained is entered in the apprentice's record sheet kept at the Merchants' Hall, and to the latter is added each year a report from his employer as to his progress and a report from the educational authority, should the lad be attending technical or evening classes. If the record sheet shows that the boy is not devoting some of his spare hours to self-improvement the committee ask him to attend an evening school.

Should the record sheet show that the lad is not giving satisfaction to his employer, or in the event of a complaint being made by the latter or by the apprentice, the matter comes before the committee for investigation. Generally there is a remit to the chairman and vice-chairman for report, and, if necessary, the employer and the boy, along with his guardian, are asked to attend before the committee. The committees have been most successful in arranging matters amicably. At the end of the apprentice's training his record is considered by the committee along with a final report from the employer, and if everything is normal, a certificate is granted that an apprenticeship has been served to the committee's satisfaction. It may not be necessary that a boy should have attended technical classes in order to qualify for this certificate if the workshop report is good. The committee quite recognise that an operative may be made very efficient in many cases with a workshop training

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alone. Again, it has been found that a lad was not efficient at the end of the apprenticeship, and an arrangement was accordingly made between his employer and himself that he should endeavour to qualify for the certificate by serving a further period at a wage agreed upon.

It has been found that as a body employers are hostile to day continuation classes, except in the painting trade. That trade, however, is exceptional, as it has periods in the year when business is very slack and no difficulty is experienced in letting the lads away to day classes at the College of Art. But in other trades it is fairly well recognised that boys cannot be expected to do much good at evening classes after putting in a long day in the workshop. Among the committees the opinion seems to be that as nearly every trade has its slack season an effort should be made to shorten the lads' hours at these times and to approach the educational authorities to arrange the classes accordingly. One can quite well see that no hard-and-fast rule can be made, but that the exigencies of each trade will require to be carefully considered, especially when there is costly machinery running. Some of the committees have had before them the question of apprentices whose masters have not registered them. It was felt that as the committees were doing good work these lads would be better under their jurisdiction, and that from the point of view of the boys themselves it was hard that they should be ineligible for the committee's certificate at the close of their apprenticeship. The joiners have got over the difficulty by both masters' federation and men's union adopting a rule that all apprentices must be registered with the Apprentice Training Committee of the trade. The employers and workmen in the painting trade have passed a similar resolution with a further provision that the Apprentice Training Committee should have power to require any boy to attend such evening classes—technical or otherwise—as they think proper. Although the Merchant Company, through their Deputy-Master, Mr. Fraser Dobie, have so far practically financed the movement and lent their offices and staff, each committee acts quite independently.

Mr. Reginald M'Kinnon, the Secretary of the Apprentice Training Committees, has issued a circular to apprentices in one of the trades in the following terms:—

The Merchants' Hall, Edinburgh, September 21.

Dear Sir,—Apprentice Training Committee.—House Painters.—I am instructed by this committee to inform you that the following rule, recommended by them, has been adopted by the Master Painters' Association of Edinburgh and Leith and the Scottish Painters' Society of these districts:—

"All boys shall, within six months of the commencement of their apprenticeship, be registered with the Apprentice Training Committee, who shall have the power to require any boy to attend such evening classes—technical or otherwise—as they think proper, as a condition of obtaining the certificate of the committee that an apprenticeship has been served to their satisfaction."

The committee accordingly desire me to impress upon you the necessity of attending the continuation or technical classes when these are reopened for the winter session. Should you not do so, or should it be ascertained from the reports furnished by the school authorities that you are not diligent in your studies, the committee will ask you to attend here for the purpose of giving explanations.

If you have any doubt as to what classes you should take this winter, please consult your employer, who will be glad to advise you.—I am, yours truly,

(Signed) Reginald M'Kinnon, Secretary.

The Royal Academy announce that the annual courses of lectures on painting, sculpture, architecture, and chemistry are postponed till further notice. Professor Arthur Thomson, M.A., F.R.C.S., LL.D., will, however, give ten anatomy lectures on alternate Wednesdays and Fridays, beginning October 13.

NOTES AND COMMENTS.

The greater reduction of lighting in London, the order for which took effect last Friday, has naturally aroused grumbles if not protests, but there are compensations which offset our inconveniencies. In the first place, there should be a saving of cost, but as far as the public expenditure on lighting by our local authorities is concerned this is likely to be smaller than might be expected, for most of our street lighting is done by contract for a definite term, and these contracts cannot be abrogated nor can they be made subject to a reduction pro rata for the quantum of light supplied. The cost per candle of 100 candle-hours is a very different thing to that of a million candle-hours. Another benefit which we think is real is the enforcement of the lesson that the amount of light to which we have become accustomed in many of our thoroughfares goes far beyond the limits of necessity. In improvement on the state of things in the seventeenth and eighteenth centuries we have been gradually led on to an excessive provision, which from a hygienic point of view is probably closely approaching, if it has not already reached, a standard of positive injury both to our eyesight and our nervous systems. We must all have noticed the feeling of exhilaration induced by a brilliantly lighted space, apart from all question of glare, and exhilaration, however produced, leads inevitably in excess to intoxication and exhaustion. There is also the æsthetic enjoyment which is now our experience of the beauty of things half seen. This aspect of the question of diminished lighting has been well brought out by M. Hermant in an article in *Le Temps* on "Life in Paris," in which he says:—

"Paris . . . is much more than saved: like many invalids who have escaped death Paris has recovered an aspect which, before the crisis, she had long lost. She is no longer Parisian; but simply Paris. She is admirable at all hours of the day, but above all at the approach of night, at the exquisite hour, the sad hour, which one might begin once more to call the hour of curfew. One no longer gets the horrible idea that every evening there is a Universal Exhibition. The city of luminous sky signs is become the city of chiaroscuro. The quays are a landscape. The shaded lamps from a few windows reflect in water profoundly black—water whose current seems to cease when night comes. The straggling trees upon the banks are more noble, more slender; they stretch themselves in the twilight or in the light of the moon. All the outlines of the monuments, even those of the most ambitious modern houses, and even of the most humble hovels, have a sovereign majesty. Poor people who live near by walk in the shadow and wonderingly admire the beauty of their town."

Men from outside Paris, M. Hermant agrees, do not all see the city with the same eyes as its inhabitants. "How beautiful it is," said he to one of them, only to receive the answer "It is sinister, isn't it?" But these are in the minority. M. Hermant figures to himself that he is writing to his cousin at Rheims, and thus concludes:—

"I thought of you this evening when I saw everything of ours intact, and the towers of Notre Dame—which once they tried to destroy, but that, like so many other blows, this one missed. I thought, with a touch of egoism, of which I am ashamed, and for which I ask your pardon, of your broken towers, your cathedral burned, your statues lying battered on the ground. A year! But we are sure that they shall pay for their crime, and that in history there is no statute of limitations."

The agitation which is being pressed by the temporary staff of the Land Valuation Department, threatened with dismissal, for more favourable treatment is now, it appears, to take the form of an appeal to individual members of the House of Commons. The whole matter rests upon the differential treatment that temporary assistants seem to expect when they are in Government

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employ to that which they must accept in ordinary professional life. In many, if not most, professions temporary engagements of additional staff are the rule under the fluctuations that characterise professional business, especially amongst architects and surveyors. In the Land Valuation Department it was obvious that the job of valuing the whole of the land in the United Kingdom could only take one of two courses: it might be done quickly by the temporary employment of an immense army of valuers or it might be spread over a very long period by the practically permanent employment of a few. The former course was adopted by the Government, and thousands of young men from all sorts of surveyors' offices, many of them with small qualifications, were attracted by much higher pay than they had ever got before to take up the temporary work. War or no war, there would be a day not very distant when the primary valuation of all the land would be finished and a great reduction of temporary staff must have ensued. The temporary employees of the Land Valuation Department have had the opportunity of dipping their hands pretty deeply into the nation's pocket for a limited time, and it would not be just and fair for this to continue in perpetuity. They are in a similar position to the workers who are now, owing to the war, receiving abnormal wages, which will cease suddenly and sharply when the war ends.

If economy by the whole nation is to be anything more than a catch word the arguments put forward by a correspondent of the "Sheffield Daily Telegraph" must be regarded as unanswerable. The cost of cottage building has become prohibitive by reason of the unwise, though well-meant, over-stringency of building by-laws and regulations made by both Government and local authorities. The writer, "A Builder," points out "reasons for no cottage building at a time when there is a premium on houses. Recently the City Council passed a foolish resolution that all cottages in future shall have a separate w.c. What does that mean?—cost of £10 per cottage more, besides future extra rates for same. The excuse given is the 1875 Act. Now there is no condition in that Act stipulating a separate w.c., and, if there was, our Council have waited forty years until there is a famine for houses to enforce that condition upon the builder. Another reason for stopping the trade is the unreasonable by-law *re* timber sizes, which requires 9 by 3½ purlins for 12 feet space, and, mark you, that size is not in existence. It is not a stock size in Sheffield or at ports, and I challenge anyone to produce one. You may say cannot you get them cut to your size. Yes, I could have a pocket handkerchief cut out of my shirt if I was ass sufficient to do it, and one would be as reasonable as the other. Other sizes are quite as unreasonable. If the cottage should be 12 ft. square you can use 2 by 7 battens, if it should be 12 by 1 you must put 3 by 7. Another terrible condition is the Water Office made law. If a cottage is rented at 5*s*. per week you may have one ¾-inch supply for four houses, but if the rent should be 5*s*. 1*d*. per week then you must supply each house with separate ferrules and fetch water from the main, across road, forecourt, up passage, on sink, and to w.c. Is this reasonable or just? The Water Department says we are bound to supply adequate water. Why is not one supply, say ½-inch, as adequate for a 10*s*. per week house as a 5*s*.? The writer has just paid £33 10*s*. per ton for lead, and still rising? How can builders make the business pay? You may ask, What is your remedy? I would say rescind your resolution, relax these by-laws, and give the builder some encouragement to go on."

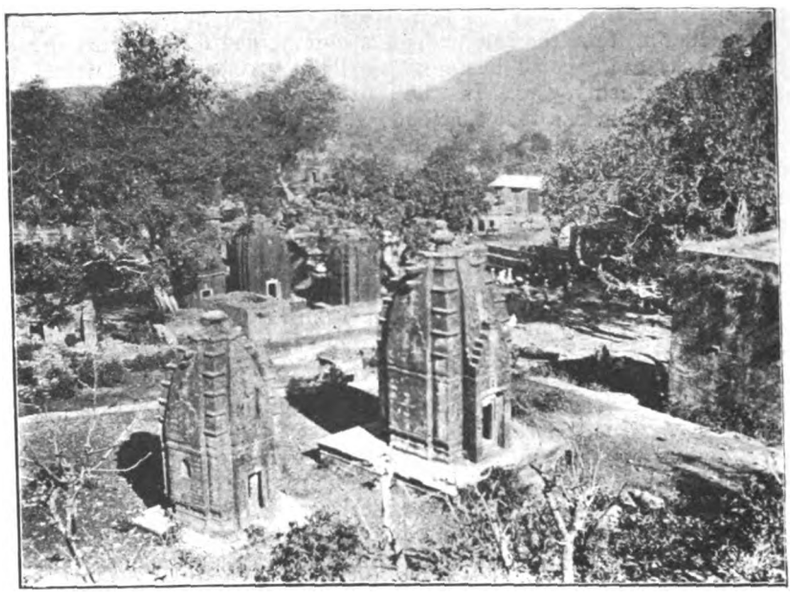
At a meeting of the Newcastle Society of Antiquaries a Roman inscribed measure of bronze, recently found near Caervorran, near Haltwhistle, was exhibited, and a note on the same by Professor Haverfield, of Oxford, was read, in which he said it was remarkable and almost unique. He referred to the Roman system of weights and measures, in which great pains were taken to assure accuracy, and described similar measures to the one on exhibition, mostly to be found in other countries. The exhibit bore no sign of solder, but had traces of rivets, which apparently had belonged to a handle. The vessel had never been on a fire, and he suggested the handle was intended for the attachment of a smaller measure or chain. It was impossible to say where the vessel was made, at Rome or in Britain, but it was probably about the time Hadrian was building his wall. The measure, the Professor remarked, conformed to no known measure of capacity, and he could only suggest it was a measure by means of which Roman officials robbed the natives.

The interesting house at Hull which forms the Wilberforce Museum has, by the restoration of the largest of the rooms on the ground floor, probably the original dining-room, received an additional importance. The deal-panelled walls of this room were painted white, and a process of scraping and cleaning has disclosed a beautifully decorated ceiling, so that the apartment looks as fresh and attractive as it must have been when it was occupied in the time of William Wilberforce. The room has been set apart for the collection of personal relics of Wilberforce. It is not crowded, but it contains many objects of great interest, such as a diary lent by Alderman Brown, a fine old Worcester tea service, a portrait of Wilberforce presented by Sir Seymour King, and a series of election cards, handbills, and addresses, relating to the time when the Liberator represented his native town in the House of Commons.

The carved oak mantelpiece, which has been restored to its original place in the main room, was erected by Sir John Lister in 1590. It is 10 feet high and 9 feet wide, supported by thirty-four pillars, and has a large centre panel bearing the Lister Arms. Before the house was purchased by the Hull Corporation in 1896, this mantelpiece had been removed to Markington Hall, near Harrogate, the residence of the Wilberforce family. In 1907 the owner of Markington Hall (the late Mr. W. Basil Wilberforce) had a tempting offer for the overmantel from America, but he agreed to suspend negotiations in order to give the Hull Corporation an opportunity of securing the relic for its original home. The price of £500 was agreed upon, and as the Hull Museum Committee had no funds available for its purchase at that time, Alderman Brown advanced the money, and a grant of £75 was made by the South Kensington authorities. The overmantel was brought to Hull, and stored in one of the lower rooms of the house until the present year, when the finances of the Museum were in such a state as justified the Committee in asking the City Council to pay to Alderman Brown the sum advanced (£425), and in placing the mantelpiece in its original position.

"You cannot eat your cake and have it" is the lesson that trade unionists must learn, and of this we have a forcible illustration in a discussion between Leith joiners and a Scots M.P. We are told by the "Scotsman" that Mr. Alexander Edington, secretary of the Leith Second Branch of the Amalgamated Society of Carpenters and Joiners, has written to Mr. G. W. Currie, M.P. for Leith Burghs, concerning a statement emanating from New York to the effect that if British plans are carried out refugees in Belgium and Northern France will be housed in buildings made in America. He states that at a branch meeting held on September 23 the members protested against this order going to America. In a resolution it is pointed out that at present there are several thousand members of the Amalgamated Society of Carpenters and Joiners unemployed, while the General Union of Carpenters also show an increasing percentage of their members out of work. "What the state of trade may be during the coming winter," it is stated, "causes us to look into the future with feelings of apprehension. The State Insurance Unemployment Depart-

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GOSAINS' TOMBS, JOWALA MUKKHI.

ment pay out-of-work benefit; the unions also pay benefits to all unemployed members. My executive, therefore, wish to know if something cannot be arranged for securing some of the work which, as mentioned in the above newspaper cutting, is likely to go to America, and thus effect a considerable saving in unemployment benefit, both as regards the funds of the State and the funds of the unions that make provision for their out-of-work members."

Mr. Currie has replied as follows:—

Dear Sir,—I beg to acknowledge receipt of your letter of 23rd inst., which only came into my hands last night. The terms of your resolution are almost identical with one passed the other day by the builders, and I see that in Nottingham the union of the lace operatives have decided to "join the manufacturers in the demand that machine-made silk and cotton laces should be included among the imported luxuries to be taxed." . . . "The Executive" have unanimously "passed a resolution asking for such a tax, and pointing out that 80 per cent. of the hands engaged in this industry are working half-time, while great quantities of foreign-made lace are still being imported."

The Government has to-day, not for the first time, stated that you and other unions are under a misapprehension in attributing any such intention to it; but it is clear from what transpired in the House to-day that the Government of Belgium is not necessarily in the same position.

Considering what Belgium has passed through, is it right to expect that its Government will, in providing the barest necessities of existence for its people, place the interests of the British working men first and the interests of Belgian working men second?

Is it fair to find fault with Mr. McKenna and the Government for even a threatened or suspected departure from principle at the present juncture, when he specifically disclaims any abandonment of principle? The Free Trade Union evidently thinks it is. I cannot agree with this view, and I cannot think that the average trade unionist would agree with it either.

You and the builders and the lacemakers all express the same view—viz., that the import of finished goods from abroad deprives you of work and wages. If your resolution does not mean this exactly and nothing else, it means nothing at all.

The view you urge now is exactly the view urged by Mr. Chamberlain in former years, and since then the relevant facts have not changed.

Many declined to listen to him when he urged the view that masters and men had the one interest in the matter. Mr. Gladstone urged in 1867 or thereabouts that the vital consideration for the British working man was the labour-content of goods.

I am glad to see that you now endorse and adopt Mr. Chamberlain's view of the effect upon your pockets which wholesale imports from abroad are bound to have.

I am only sorry that the war makes it impossible for supporters of a united Government to press your views at the present juncture.

If you can find out anyone who really thinks your views are unsound, it is to him that your arguments should be addressed. I am convinced already.

COMPETITION NEWS.

Plymouth.—The award in the competition organised by the Plymouth Mutual Co-operative and Industrial Society for the erection of business premises in Frankfort Street on a site containing about 24,000 square feet has now been published by Mr. Paul Waterhouse, M.A., F.R.I.B.A., the assessor. There were ninety-six designs, and Mr. Waterhouse made the following award: The author of the design No. 54 be entrusted with the carrying out of the work (Messrs. Halliday & Paterson, and C. Gustave Agate, Manchester). The author of design No. 57 be awarded the premium of £75 (Mr. H. R. Gardner, Leatherhead). The author of design No. 10 be awarded the premium of £50 (Mr. H. S. East, 14 South Square, Gray's Inn, W.C.). The author of design No. 27 be awarded the premium of £25 (Messrs. F. Bethell and C. M. Swannell, 3 Broad Street Buildings, Liverpool Street, E.C.).

ILLUSTRATIONS.

SCHOOL BUILDING, SOUTHWOLD.

This block is the latest of a series of buildings erected during the last fifteen years to house the St. Felix School at Southwold in Suffolk. Multi-coloured bricks and hand-made roofing tiles give colour and texture. Messrs. John Youngs & Son, of Norwich, were the contractors, and Mr. Arnold Mitchell, F.R.I.B.A., the architect.

PORCH OF CATHEDRAL, TOURNAI, BELGIUM.—IN THE GRAND PLACE, YPRES, BELGIUM. — THE BELFRY, ABBEVILLE, FRANCE.—DIXMUDE, BELGIUM, VIEW OF TOWN HALL AND CHURCH OF ST. JOHN.

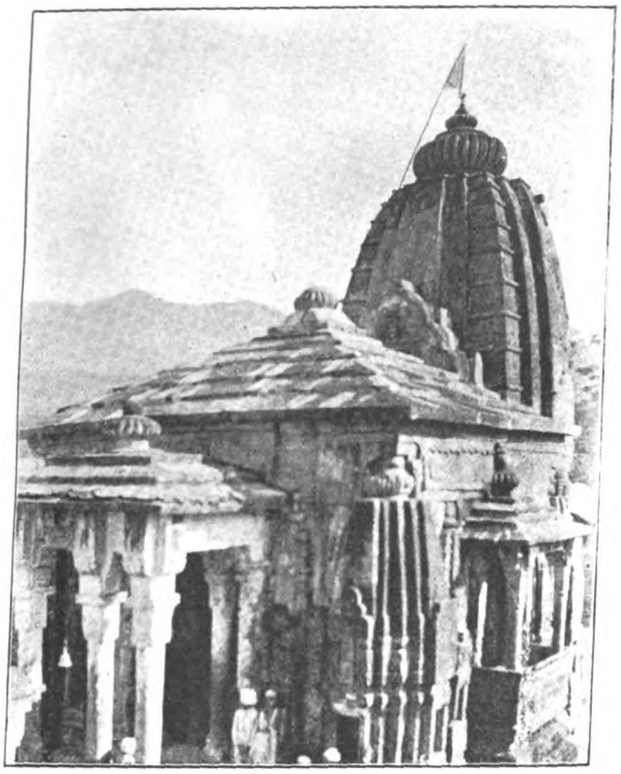
These sketches by Mr. Robert C. Kennard from localities in and near the present fighting zone are of interest not only as records of some buildings now destroyed, but as excellent examples of draughtsmanship in architecture, of which we trust further instances may shortly appear in book form.

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THE MASRUR ROCK TEMPLE.

At the last meeting of the Royal Asiatic Society in their rooms at 22 Albemarle Street, W., an illustrated account was given by Mr. H. Lee Shuttleworth, I.C.S., of "The Masrur Rock Temple and other Hindu Temples of the Kangra Hills, Punjab." The lecture was the fruit of the scanty leisure amid the last three years' arduous official duties in one of the most interesting parts of the Punjab Hills.

The Masrur Rock Temple has no complete known parallel in the North of India, and is in many respects



TEMPLE AT BAIJNATH.

different from the Elura, Ajanta, and other rock temples of Central and Southern India described by Fergusson, or the neighbouring Kangra shrines. The tract containing the Kangra shrines lies on the low and very broken hills between Jammu and Kashmir on the north and the Simla Hill States on the south-east. Vigne in 1836 not unjustly described the general landscape as one in which extent and sublimity were united in great perfection.

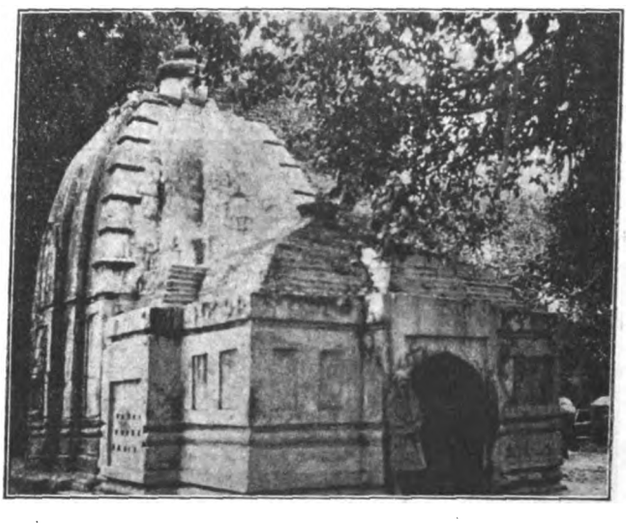
This district is one of great sanctity to Hindus, who supply the bulk of its population. Up to at least the seventh century most of it formed part of the great kingdom of Jalandhara, ruled by the Katoch Rajas of the Lunar Rajput dynasty, whose direct descendants still hold the title of Raja. The name Jalandhara is said to be derived from an enormous demon (killed by Shibji or his wife, the Devi worshipped at Jowala Mukkhi and Kangra), whose body lies buried under a tract of lower Kangra 48 kos in extent. Temples sacred to Shib or the Devi mark where various parts of his body lie: such are Baijnath, Kangra, Triloknath, Jowala Mukkhi, and Kathra. Various accounts put his head at Baijnath, Kangra, and Jowala Mukkhi. The sangam or junction of the rivers Ban Gunga and Gupat Gunga, near Kangra, is of special sanctity. In answer to the dying demon's last request the goddess is said to have promised forgiveness of sins to any who died within the country covering his body. An interesting old plan has been seen by Mr. Shuttleworth showing pilgrims how to visit the main temples of this sacred land in the correct sequence.

The ancient temple of Bajeswari Devi at Kangra, the fame of which attracted the rapacity of Mahmud of Ghazni, was destroyed in the great earthquake of 1905. The edifice now being put up is of little interest compared with its predecessor. The even better known temple of Jowala Mukkhi, sacred to Devi, the wife of Shib—in which inflammable gas issues from the cleft of the rock, thought by some Hindus to be the breath of the buried demon—lies in a picturesque nook of the Kali Dhar range of hills. The accompanying photo shows a typical group at Jowala Mukkhi of some Gosains' tombs, all in the form of temples of Shib. Members of the sacred sect of Gosains are buried, not burnt like ordinary Hindus. Some of them, like other Hindu mendicants, do not marry, but adopt disciples or chelas. Most of them marry and engage in trade. The Devi temple, as here at Kangra, is tended by priests, called Bhojkis, a class of men notorious for every kind of malpractise, and specialists in fleecing the pilgrim.

The well-known Shibdiwara of Baijnath nestles close under the snow hills. The photo here given shows it as restored after the earthquake. An inscription that Fergusson took as giving the year of completion as 1240 A.D. is now considered to give 804 as its date. One legend makes Jalandhara's head to be buried here. The plan of the temple is typical. The whole is surrounded by a wall containing at one side small rooms like a sarai. Facing the temple door stands Nandi in a little roofed-in building of his own. The door or porch opens into a small hall, which in its turn leads into the square shrine containing the god's lingam or emblem. This shrine is surmounted by the ribbed spire or shikhara, vertically curved or rather bulging, but in horizontal section rectilinear and not round. It is surmounted by the round coping stone, or amalaka, which is considered to represent the holy lotus flower. Over it again is the spiked ornament known as the kalasa or waterpot, symbolical of fertility. Like all Hindu temples, the only external light that enters the sanctum comes through the door. Another small temple is within the same compound. The simplest form of temple consists of the shrine alone surmounted by a spire, with no pro-cella. As a rule the dome is architecturally an earlier form than the spire. Various other types of stone temples are to be found in this sacred tract.

Another temple of the same structural design as Baijnath, but earlier, if the more squat spire is sufficient evidence on that point, is the Narihana temple on the Beas, near the junction of the Ban Gunga with it. It stands in a thick grove of overhanging trees, as will be seen from the photograph.

Only a century in age is the temple of Maheshri Devi at Sujanpur, which we here illustrate. It is commonly known as the Rani's temple, as Raja Sansar Chand erected it on behalf of one of his queens. Here there is no spire at all, instead a flat roof. It is distinctly after the



NARIHANA TEMPLE OF SIVA.

so-called Mogul style, but in the hands of the Kangra artists that style suffered none of the debasement which it did in Sikh architecture. Not the least of the interesting features of this temple is the series of beautiful mythological paintings that cover its inner walls.

The rock temple locally known as the Masrur Thakurdwara, or temple of Vishnu, is not substantially of a very different type from Baijnath; but it is more amplified, and is on a far larger scale. However, it is modest enough when compared with the great Hindu temples of Orissa, Kathiawar, and the south, or with English religious edifices. When Mr. Shuttleworth first visited it in the spring of 1913, in the course of Settlement duties, the inhabitants told him that he was the first Englishman to have seen it near at hand, though in the 'fifties it had

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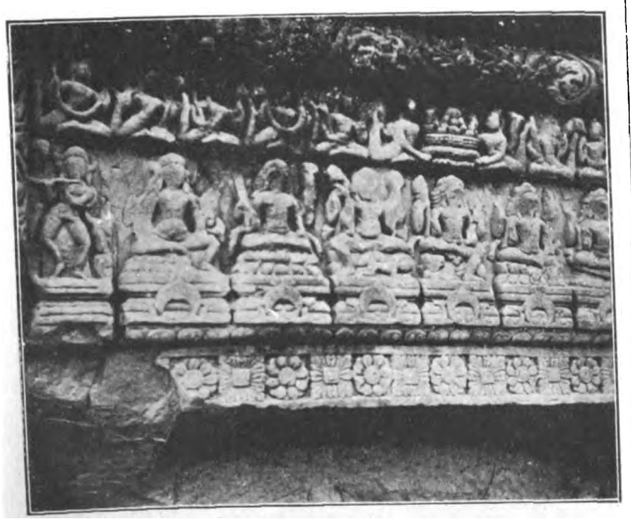
been pointed out to the then Settlement Officer from a distant height. Indian subordinates from the Archæological Department seem to have visited it on at least two occasions, and the more recent one deserves much credit for



GARUDA ON CARVED PILLAR (VEHICLE OF VISHNU).

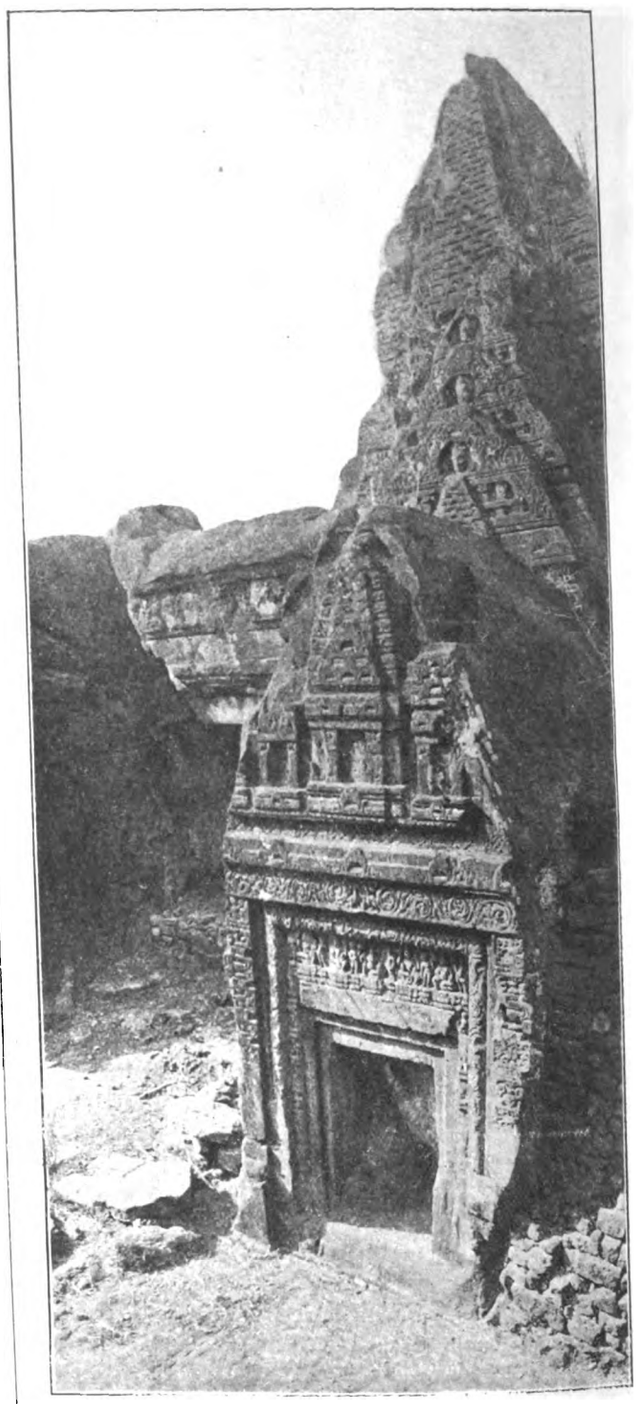
being the first person to advocate that steps should be taken for the conservation of the temple. The Public Works Department have now carried out a certain amount of underpinning of threatened portions and of excavation of accumulated débris.

The range on which the Masrur temple is situated is near to and parallel with a north-west extension of that behind Jowala Mukkhi. It is about eight miles from Kot Kangra and Haripur, but only accessible by rough forest



LINTEL CARVING, MASRUR TEMPLE.

paths. The regularity of its plan is remarkable. The rocky sandstone ridge, running from south-east to north-west, was hewn vertically down to a depth of 50 or 60 feet in two places about 60 yards apart. Between these two cuttings the temple has been formed out of the intervening portion of the ridge. On the north-east a large tank was excavated. The main temple is flat roofed; from its centre rises an exceptionally massive spire or shikhara, of the type seen at Baijnath, to the height of the original rock. The round coping stone and pointed ornament have fallen. The base of this spire is cruciform. It stands immediately over the main cella or sanctum of the temple, the only one completely excavated. It is supported on either side by twin spires of less bulk and height. At each corner is another spire of similar design. On either side of the main door to the sanctum under the large spire are two more spires, one very ruined. Inside these were stairs leading to the roof. The space between the corner and staircase spires is filled by two flattish and lower structures of a pyramidical shape.

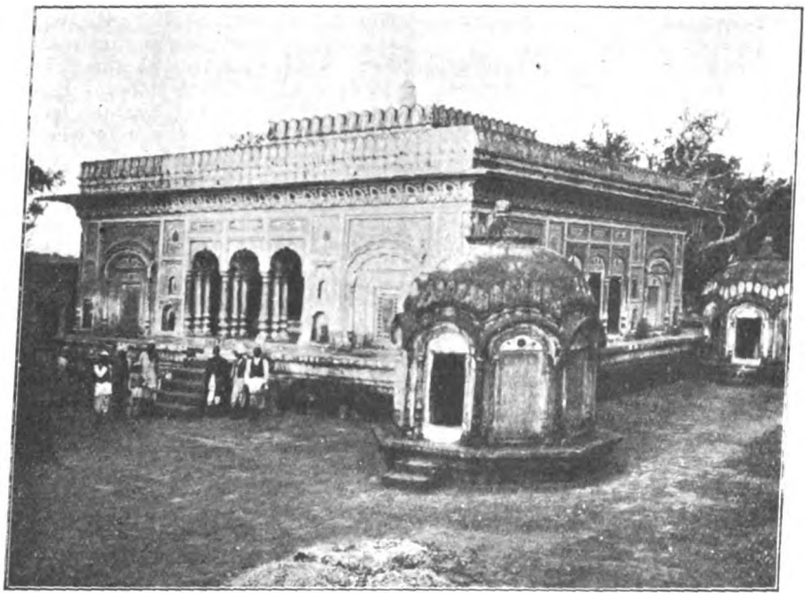


EAST CORNER, MASRUR TEMPLE.

Close to the tank were four other detached spired chapels, all parts of the same general design. The small pair in the centre formed the entrance to the courtyard, once roofed in. The two larger spires were in a line with these and each pair of corner spires. The east corner spire here illustrated is in a remarkably good state of preservation, while the other corners are much more ruined. The unexcavated door under it should be noticed with its lintel carved with figures of gods.

As to the date of the temple, there is no exact information from inscriptions, as at Baijnath, or from copper

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RANI'S TEMPLE, SUJANPUR.

plates, as in so many cases Dr. Vogel found in Chamba. The people cannot help, as they assign its construction to the epic heroes, the Pandavas, who are said to have done their work in a night, but left it incomplete in the early morning, as the appearance of a Telin on the scene made them abandon it, fearing discovery and an extension of their exile. From evidence of style and the character of most of the sculptures Mr. Vincent Smith, the eminent authority on Indian history and art, puts it not later than the seventh century. The Archæological Department officials who have seen it take a similar view. The work, especially the sculptures, is not unlike those sometimes



PART OF MASRUR TEMPLE.

described as late Gupta Much of the far-distant Elura Brahminical temples were excavated about this time, while the wood temple at Chatrari in Chamba, with wood carvings of the same style as here, is dated by Dr. Vogel as about 700 A.D.

The temple was constructed after Buddhism had almost died out in the district, and is somewhat earlier than the Baijnath Shibdiwara mentioned by Fergusson. The sculpture of Krishna on one of the lintels is interesting as affording probably the earliest evidence of his worship, if Dr. Vogel's reading of an inscription at Kaniara is correct. It has been suggested that the temple was originally devoted to Shib. This Mr. Shuttleworth thought was not unlikely on general grounds, but there was no positive evidence to confirm the view. It would certainly seem more likely that this temple, being situated in the middle of a tract of peculiar sanctity to Shib and his wife, should have been built in his honour.

YOUTH IN ARCHITECTURE.*

By Mr. Hugh Ferriss.

It would necessarily be a pleasure to any student of architecture to address a gathering composed of representatives of the various arts, who doubtless realise to what extent architecture may be imbued with the spirit of art.

It is a particular pleasure to me to appear on an evening devoted, by your indulgence, to young men, to suggest to what extent architecture may be imbued with the spirit of youth.

The antiquity of architecture is a matter which is universally appreciated. The young student's ideas are entirely formed by it. The first dictum which I received in the architectural course of one of our universities was, "Architecture is not a creative art." We were taught not merely to understand the raison d'etre of the motifs of the past, but to actually copy them. We were permitted to give something of ourselves to our chosen art, only to this extent: we could reassemble and recompose the details of those past forms.

The layman in this country sees about him the architectural types of other countries, as continually as the traveller who sees them in their native soils. As a result of this, his most typical question, on seeing a new building, is, "To what period does it belong?" As for the practising architects, they are daily turning out copious quantities of the architecture of other days. In the scholarly atmosphere of their ateliers, one is brought face to face with the glory that was Greece, but there is scarcely a hint of the glory that is Manhattan: the glory that is to-day.

In the other arts the situation is distinctly different. (Heaven forbid that I call down on your heads the callow efforts of certain so-called members of the Futuristic movements!) But even casting out that portion which is pose and theatricalism, we are nevertheless willing to have the modern artist work on modern themes. We do not demand that the modern composer follow the exact musical progressions of a few decades ago. We even listen to the many modern minor poets, when their subjects naturally require new forms of their own. But architecture is denied this

* An informal address delivered before the National Arts Club, New York City.

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sensitiveness to the changing conditions about her; she must remain unbending and aloof, her eyes fixed on a vanishing point in a distant land—art's sterner sister.

To those learned archæologists of the architectural profession who brand all efforts to achieve modern interpretations as a vain attempt to "improve the Perfect," or who, in granting that we may eventually express our own time after a prolonged period of copying, are damning our youth with their faint appreciation; to those wintry ones who deny that Spring, in the inevitable sequence of seasons, is again coming—I say that there is a Puck under the hedge-row; an hilarity; a spirit of re-awakening; a youth who will arise, brother to the youths in the other arts, and who, most sincerely, most conscientiously, most enthusiastically, will create an architecture germane to his own time.

What will the characteristics of this youthful architect be? In the first place, he will be an eager student of the Past, but he will copy, not the results of the past, but the thoughtfulness which led the architects of the past from their conditions to their results. The serene masters of Greece, the rugged Gothic masters, will be emulated by him, not for their beautiful motifs, but for that virile youth of theirs which led them to abandon the forms which did not belong to their time and create those which did. It is not that he will attempt to improve the perfect; he will love that perfection; it will be his very reverence for it as an expression of its own time, that will make it impossible for him to transplant it to an alien time, and an alien soil.

Secondly, the youthful architect will more vividly realise the meaning of the word "Architecture"; that it is not "something that is put on the front of a building." As I recently heard a designer say to his draughtsman, "I want to get a little more architecture on at this point"—not that it is an application from without, but an outward unfolding from within: a natural growth.

It is a familiar doctrine among architects that the form of a building should follow its function. As Mr. Sullivan says: "Form follows Function." Now I have heard this idea expressed by both the most extremely reserved and the most extremely "extreme" designers. Their agreement is of little consequence. The point of the matter lies in the vividness with which the doctrine is applied. And in the vivid sincerity of the youthful architect, there will no longer be, for instance, a repeating of Greek forms, when the building on which they might be put and the people who would occupy the building, have no claim whatsoever to the Greek spirit. The sacrificial bull's skull will disappear for ever from the portals of our village savings-banks. The wooden rafters which actually held the projecting eaves of the Italian loggias will no longer appear—in copper—tacked on at the cornice line of the modern office building—which has no earthly use for even the cornice itself!

This sincerity is already being heralded; not only in the more enthusiastic Middle West, but in our own more conservative East as well. The significance of the Woolworth Building does not lie in its designer's masterly delineation of Gothic detail, not in his happy choice of a material so particularly adapted to the ascending and fluid line of Gothic design, not in its almost perfect sense of scale; its significance lies in its expression of its actual steel structure, in its appearing to be what it is: not a building of the Gothic age, but a building of the modern age.

Now, emulating this sincerity and carrying it forward in the years to come, the youthful architect, in erecting a building of the modern age, will inevitably abandon even successful adaptations of old forms to modern use, and will give birth to modern forms as well. And it will be a most natural birth: a birth resulting from direct and sensitive contemplation of conditions as they actually are, and a virile desire—no longer intrigued by happy solutions of the problems of the past—to set these conditions forth, embodied in natural and living forms.

He may well realise the practical and financial difficulties in the way of the pioneer; he may well know that this is a role to be filled devoutedly, and never by the seeker of mere sensation and "individuality"; he may well appreciate that to the lover of beauty, it is a most seductive course to give a life's work (one so easily could) to dealing in forms which more creative spirits have already made beautiful; but he will also realise that the snake which cannot change its skin, dies. And the significance of Architecture will likewise die, if, in a new life, it cannot clothe itself in forms characteristic to that life.

Finally, he will not be satisfied with only a structural sincerity. He will strive to express, not only the body of a building, but its soul as well. He will seek to interpret, in his more subtle designs, the purpose of the building, its character, its mood: its gravity, its humour, its power, its serenity. He will strive to more nimbly reveal the activity that is going on within the building. Architecture will no longer be static: it will be fluid. It will be as fluid as the fluid stone of Rodin; architecture will yet have her Rodin, her Czanne, her Debussy.

A building is not merely what it appears on the drawings in the architect's office; with each stone, with each steel column it takes life, it breathes. . . . In the early light of one sunrise the Woolworth tower was not to me that mass of Gothic detail which had lain in its designer's drafting room: it was an ineffable, a fragile, an unreal thing: a lone Pierrot under a single star: I could have blown it away with a breath. By noontime that structure had generated a gigantic force—a huge power that sent it continually hurtling itself vertically upward into the sky above it.

The lithe triangular mass of the Flatiron building, thrusting its vivid point forward, seems, in the change of a thought, as though it would speed northward up Fifth Avenue, cleaving through those two rows of attractive corpses of a dead age, which line the modern thoroughfare.

You who are enthusiasts of the glory of the past of architecture—as I whole-heartedly am—I ask you to consider the spirit which made the past ages glorious; it is a spirit which will give to our age a glory of its own; it is the spirit of youth.

ARCHITECTURE OF LONDON HIGHWAYS.

By Viator.

FROM No. 1 LONDON TO THE CHISWICK FRONTIER.

No. 1, London! Yes, that is what Apsley House, Piccadilly, used to be called a long while ago, for at some period this was the frontier, and the milestones westward bear their mileage register with reference to the distance in each case eastward to Hyde Park Corner. The adjoining village of Knightsbridge possessed its own open space, whose memory is preserved to the present day by the street known as Knightsbridge Green. At that period we may well suppose that Piccadilly was not the ordered thoroughfare which we now behold; there may have been here and there a gentleman's seat—no more.* But we have long since dealt with Piccadilly. It is our present purpose to pursue a westerly route from Hyde Park Corner, passing through Knightsbridge, Kensington, and Hammersmith.

It is not St. George's Hospital that will detain our footsteps, and we are pleased to recognise the fact that a few years' interval will witness its removal to a more suitable site. And, truth to tell, it is not along the thoroughfare of Knightsbridge that we feel any desire to linger. It is not the Tube station, with its super-imposed hotel (the latter designed by Mr. Delissa Joseph), that will arrest our footsteps; and if we are induced to stop opposite Messrs. Woolland's drapery stores, it is not through any compelling admiration. Mr. H. L. Florence, the architect, may not be congratulated upon this unwieldly Johnsonian piece of architecture.

Knightsbridge is an intimate admixture of old and new, and the old is for the most part preferable. The block of old houses with the frontages well set back from the footway on the north side has an air of quiet dignity and patrician lack of display most restful to the eye; but, all the same, there is nothing architectural about these houses, as usually understood. Elsewhere in Knightsbridge and in Kensington Road we find some of the old bow-windowed and bow-fronted façades, which bear about them such an air of quaintness and recall the days of the Georges and the early Victorian era.

But let us regard in some detail a few of the buildings in Knightsbridge before our steps wander into Kensington. The Alexandra Hotel is worthy of note in its stucco Renaissance garb; it possesses dignity, expression, a sense of composition, and presents a design which is truly architectural. The range of detached Corinthian columns along the first floor and the elevation of the façade centrally are good features. Being in stucco, the general rustication is commendable, replaced on the ground floor by vermiculated treatment.

Neither Park Mansions nor the Hotel Knightsbridge need detain us, but Albert Gate Mansions deserve notice for the quiet respectability of the design in modern Queen Anne

* See *Clubland, Ancient and Modern*, August 25 and September 1, 1911.

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style; there is even an air of Norman Shaw about the block, and probably that architect's work proved an inspiration.

Parkside is a large block of shops and flats occupying ground between Knightsbridge and Hyde Park; it forms a lively façade in stone and red brick, the ground storey lacing courses and dressings being in stone. The storeyed oriels are too shallow, being scarcely more than breaks in the façade; but we have seen many worse designs, and the ornament employed is well distributed, nor is there too much of it.

Three houses of good architectural appearance must be next mentioned, these being Albert Gate House, its *vis-à-vis*, and Hyde Park House: all these are of one type and style in simple Renaissance. The last-named has a magnificent porte-cochère, with salon over, and the other two mansions possess a similar feature, so far as appearance is concerned, but available for foot traffic only. These two houses flanking Albert Gate were at one time known as "the two Gibraltars," for it was said that "they would never be taken." They were built as speculations (we believe by Baron Grant), and, despite their assumed impregnability, both have long since been in occupation, Albert Gate House being the headquarters of official France in England. A few years ago witnessed the demolition of Knightsbridge Chapel, which had formed a feature of interest on the north side of the thoroughfare; but this Gothic flint-faced façade was doomed, and its place is now taken by an extension of the French Embassy.

One of the numerous branches of the London County and Westminster Bank is to be seen adjoining Hyde Park House; stone-fronted, it presents a good design to the public gaze in its correct Renaissance garb; the entrance lobby is well projected.

Two more blocks are to be noticed in this portion of the thoroughfare—Hyde Park Hotel, which is fully expressive in its red-brick and stone façade, and finally Knightsbridge Barracks, concerning which it will be well to say as few words as possible, not by reason of any demerits appearing in it, far otherwise; but under present circumstances it is uncertain to what extent it is desirable to dilate upon military buildings, nor indeed would we venture to arrest our steps before the barracks, apprehensive of what the result might be. Suffice it that this pile, which was erected in 1879 (from the designs of Mr. Nelson, we believe) presents its back front to Knightsbridge and faces the Park, and it is one of those buildings that bear evidence to the value of simplicity in architectural design.

Kensington Road is notable architecturally for four buildings, two of these being the work of Norman Shaw, the other two being the Albert Hall and Albert Memorial. Let us regard these in succession. Albert Hall Mansions and Lowther Lodge are fine examples of the effect of simplicity. If only architects would in general recognise the value of this principle of art! Lowther Lodge is dependent for its success upon its proportion, composition, masses, colour, and simplicity. It merits the careful inspection both of architects and students, and a greater share of the attention of the general public, which is, however, backward in appreciation of works of art. The adjoining mansions possess also the sign-manual of the artist in design, and they are (or should be) an example for all architects engaged in the work of their profession; in this block the effect of the recessed arcaded balconies is very good.

The Albert Hall was designed by General Scott, R.E., and merits the highest praise; it is planned as an ellipse, and presents four large porte-cochères, striking the chief cardinal points of the compass. It is of red-brick and buff terra-cotta, and an early instance of the use of these materials in conjunction. The frieze, executed by Minton, Hollins & Co., is the most attractive portion of the elevation, which in other respects rather lacks repose. But the building as a whole is a marked success. The Albert Memorial, which was raised in memory of the Prince Consort, though undoubtedly a work of art, does not, in our view, compare at all favourably architecturally with the previous three buildings. It looks more fitted to be under a glass case than to be defying the elements, and it is a fact that some adventurous architect did design such an enclosure which he considered suitable for erection in the gardens. Fortunately this scheme went the way of so many others, for, mistaken as many may consider the position of the Memorial, it would have been far worse under the alternative arrangement. But that Sir Gilbert Scott designed a generally attractive piece of confectionery none will deny, and so far as regards the statuary groups, the artistic qualities are of the first order—the elephant for Asia, the camel for Africa, the bison for America, the ox for Europe, and each with its appropriate ethnic figures, reflect the greatest credit upon the respective sculptors, H. Foley, W. Theed, J. Bell, and P. Macdowell. Again, the pose of the Memorial raised by five flights of steps above the highway and backed by the massive verdure of the trees, is a fine setting. We used the term "confectionery" just now, and it may be said that this effect was greatly increased by the heavy gilding of the Memorial statue of the Prince, always an eyesore; but now (1915) this has just been altered and the gilding removed, so that Foley's bronze statue has at last come into its own. The gargoyles and outstretched arms upon various minor groups destroy the unity of the design at various points, and despite many excellent features the Memorial, as we first remarked, cannot be regarded as a success.

And now we will proceed to view some buildings in Kensington High Street, making reference first to that very fine piece of architecture of Sir Gilbert Scott's, St. Mary Abbott's Church, which replaced a very mean structure over half a century ago. There are not a few fine modern Gothic places of worship scattered about the kingdom, but Kensington Parish Church takes second place to none. Sir Gilbert has reproduced a rather early phase of the style, and the result is altogether charming. There is more than a tendency at the present day to decry Scott as a church destroyer, an iconoclast, but, even if he made some regrettable mistakes, he has left many a fine work of modern Gothic to charm our eyes.

Mr. H. L. Florence is again unfortunately prominent with the ill-conceived Victoria Memorial erected in the centre of the roadway in 1904; it lacks style and shapeliness, and is a real blot upon the highway. The Town Hall was erected in 1876 from the designs of Mr. Robert Walker, and is a decent three-storey stone Renaissance block with the Royal arms well executed in the tympanum of the pediment. The adjoining Free Library, erected in 1852, was previously to 1876 the Town Hall. It is an insipid piece of modern Elizabethan architecture in red brick with stucco dressings.

In this lengthy thoroughfare, stretching (so far as our present route is concerned) over four miles westward from Hyde Park Corner to the boundary of the County of London, we must necessarily omit notice of much that might suitably find inclusion under other conditions; *en passant*, we may commend much of the modern domestic and commercial architecture erected along Kensington High Street, comparing (or rather contrasting) favourably with the early nineteenth-century terraces still to be found on either side of the thoroughfare.

The historical associations are interesting, including Joseph Addison, C. J. Fox, Thackeray, Coleridge, Wilkie, and others. Holland House cannot be seen along our route, but the fine entrance gateways to the estate and the pretty little lodges are worthy of note. So, too, is the statue of Lord Holland, Fox's nephew, set up in 1871, one of the few fine pieces of statuary in London. The inscription in reference to this peer upon one of the memorial fountains is worth quoting:

"Nephew of Fox and friend of Grey,
Be this my deed of Fame,
That those who knew me best may say,
'He tarnished neither name.'"

But, leaving Kensington, we must make a brief, very brief, survey of Hammersmith, by no means regretting the opportunity of not enlarging upon Olympia, standing off to our right. Cadby Hall, the erstwhile Kensington stores (as we first remember it a quarter of a century or so ago), forms a serviceable expressive block of commercial offices, the headquarters of J. Lyons & Co.

Brook Green diverges northward just west of Cadby Hall, and the name recalls the old fair which used to be held upon it annually. At the present day it is more interesting by reason of its magnificent Catholic Church and almshouses—a charming group of modern Gothic art. We are always glad to encounter Alfred Waterhouse's work, and in St. Paul's School we find an excellent example. Waterhouse and Norman Shaw par excellence made manifest the value of simplicity in design, though when occasion called for it they knew how to move towards elaboration. St. Paul's School is a compelling pile in red brick and red terra-cotta, and depends for effect upon the same qualities as we noted earlier in regard to work by Norman Shaw.

Nazareth House must be noted in passing for a certain quiet satisfying quality, quite in keeping with the good work effected by the gentle sisters within its precincts. The entrance to Rowton House (a pleasing elevation in buff terra-cotta) leads our attention to another form of philanthropic work of modern development. We are glad to see

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some of Mr. Bentley's work in the Convent of the Sacred Heart, an erection in free Gothic that is spiritually good architecture.

We cannot enthuse over Mr. J. H. Richardson's design for Hammersmith Town Hall, erected in 1896. Though eclipsing Kensington Town Hall in size it will not compare in merit.

Westwards from Hammersmith Broadway along King Street to the county boundary at Young's Corner, where Goldhawk Road debouches into Chiswick High Road, there is not much worthy of notice, even if time and space permitted. The road has been considerably widened in recent years on its northern side, necessitating wholesale rebuilding, and some few of the façades are passable reminders of old styles, though the only one worthy attention is the Temperance Billiards Hall, a worthy attempt at architectural design. The Wesleyan Church on the south side of King Street is a good piece of Gothic (erected in 1876) in random rubble with ashlar dressings. And here we feel compelled to stop.

LAW AND ENGINEERING—SOME POINTS OF CONTACT.*

By Sydney G. Turner, A.M.Inst.C.E., Barrister-at-Law.

Introductory.—The close connection which exists between the professions of law and medicine has long received visible recognition in the periodical meetings of the Medico-Legal Society, and the author has for some time past been of opinion that the no less close connection between law and engineering would amply justify the establishment of some similar periodical meeting at which lawyers and engineers could discuss the many subjects which are of mutual interest. A little reflection will serve to show how wide the range of such subjects is—so wide, indeed, that it is impossible to deal with them all in the present paper. Writing in 1911, Lord Justice Fletcher Moulton (as he then was) said in the course of his introduction to Mr. L. W. J. Costello's volume on "The Law relating to Engineering": "The profession of an engineer involves much more than mere engineering knowledge or even executive skill. In a large proportion of the matters in which he is consulted he has the responsibility of giving advice, and that advice often relates to acts in which the rights of third parties are directly or indirectly involved. This consideration alone would make it desirable that he should have a sound knowladge of such branches of the law as bear upon the questions he has to resolve. But his need of clear legal concep tions does not depend on this alone. He has not only to administer, but often to frame, contracts of a character which, beyond doubt, renders them the most complicated of any that have to be interpreted and pronounced upon by our Courts, and their nature is such that he can only pass on the responsibility to professional lawyers to a small extent. The rest deals with matters so technical that it must remain in his hands." The general relation of law to engineering could hardly be stated more clearly; and if it is necessary for the engineer to possess some legal knowledge for the proper exercise of his profession, it is no less necessary—as may be seen from the result of a thousand cases—for the lawyer who is conducting a technical case to have at least such a bowing acquaintance with engineering as to enable him intelligently to cross-examine the expert witnesses on the other side. In the present paper the purpose of the author is to make as wide a survey as possible of the field of engineering practice, with a view to ascertaining some of the more important points of contact between law and engineering.

Expert Evidence.—Before carrying out this plan in detail, however, it will be convenient to consider some points of contact that are common to every branch of engineering. And first, as to expert evidence. If the examination and cross-examination of witnesses is an art, so also is the giving of expert evidence in a convincing and unshakeable manner. It is not necessary to repeat here the old story of the classification of liars into three kinds—the superlative class being the expert witnesses—for although it may have some merits as a jest, the idea upon which it is based is entirely false. Suffice it to say that although the art of the expert witness can only be acquired by long experience, there are many questions as to the rules of evidence and the permissible limits of cross-examination that are of common interest to the lawyer and the engineer. As a general rule the mere opinion of an individual is inadmissible as evidence of a material fact. To this rule, however, there has long been an exception in favour of the admissibility of the opinions of skilled witnesses whenever the subject is one upon which competency to form an opinion can only be acquired by a course of special study or experience. Observation shows that the experienced expert, in giving his evidence in chief, speaks with authority and conviction, but is careful to avoid the appearance of mere advocacy. Before going into the box he endeavours to appreciate the case of the other side and to anticipate and consider possible lines of cross-examination, remembering that if he has expressed a different opinion at other times, this may be put to him, and if denied, be independently proved; and that he must be prepared to face a searching inquiry into the grounds or reasoning on which his opinion is based.

Engineer as Arbitrator.—The field of arbitration is another ground upon which the lawyer and engineer frequently meet. Either may be called upon to act as arbitrator, so that both must have a thorough knowledge of the powers and duties appertaining to the office. The position of the engineer as arbitrator is often one of peculiar delicacy and difficulty.

If, however, the contract so provides, as a general rule both employer and contractor must submit to his jurisdiction, for such a clause undoubtedly constitutes a "submission" within the meaning of the Arbitration Act, 1889, the first section of which provides that a submission, unless a contrary intention is expressed therein, shall be irrevocable, except by leave of the court or a judge, and shall have the same effect in all respects as if it had been made an order of court. The independence of an engineer acting in a judicial capacity as arbitrator in a dispute between a contractor and his own employer is obviously open to question. Nevertheless, the appointment being the result of free contract between the parties, it is not open to the contractor to object to his acting merely upon the ground that he is open to suspicion of bias. On the other hand, of course, the arbitrator is bound to act with judicial impartiality and fairness. In the words of Lord Justice Bowen in Jackson *v.* Barry Railway Company, 1893, 1 Ch. 238, in appointing the engineer as arbitrator, the parties "rely on his professional honour, his practice, and his intelligence; and the contractor certainly has a right to demand that, whatever views the engineer may have formed, he will be ready to listen to argument, and at the last moment to determine as fairly as he can, after all has been said and heard." In certain cases, however, the Courts have held that the contractor is entitled to be relieved from the arbitration clause. For example, if the engineer himself is a necessary witness at the inquiry, or if the question in dispute involves a consideration of the engineer's own conduct, it is manifestly unfair that he should act as arbitrator.

Contracts.—It will be remembered that in the words of Lord Justice Fletcher Moulton, already quoted, he emphasised that the engineer has not only to administer, but often to frame, contracts of a character which, beyond doubt, renders them the most complicated of any that have to be interpreted and pronounced upon by the Courts, and their nature is such that he can only pass on the responsibility to professional lawyers to a small extent. It is not intended here to consider any of the matters which were so admirably dealt with in the lectures delivered by Mr. Costello in 1910-11. What he then said was quite sufficient to show that in the field of contract there is great community of interest between the lawyer and the engineer. In view of the fact, however, that so much engineering work to-day is carried out by municipal and other corporations, it may not be amiss to recall that such bodies occupy a special position. For example, as a general rule a corporation, whether municipal or otherwise, can only contract under seal. To this general rule there are three exceptions, viz.: (*a*) Acts very frequently recurring; (*b*) acts too insignificant to be worth the trouble of affixing the common seal (Church *v.* Imperial Gas Light Company, 1838, 6 A. and E., 846; Mayor of Ludlow *v.* Charlton, 1840, 6 M. and W., 815); (*c*) where the purposes for which a corporation is created render it necessary that work should be done or goods supplied to carry those purposes into effect, and orders are given by the corporation in relation to those purposes, if the work done or goods supplied are accepted by the corporation, and the whole consideration for payment is

(*Continued on page* 293.)

* A Paper read before the Society of Engineers (Incorporated) on October 4.

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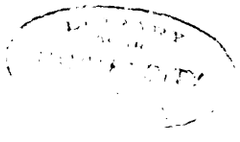
ARCHITECTS, ARCHITECTS' ASSISTANTS AND STUDENTS SERVING IN HIS MAJESTY'S FORCES

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Adams, F. Tidswell, 2nd Lt.	Duke of Wellington's Regt.
Adams, H.	R.A.M.C.
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Adams, L. K., Lieut.	7th King's Liverpool.
Adams, M. S. R.	Royal Naval Air Service.
Adams, W. A. C., 2nd Lt.	Artists' Rifles.
Addey, F. A.	Royal Engineers.
Ainsworth, H. D., L.-Corpl.	5th Middlesex Regt.
Ainsworth, J. Cooper	R.N.V.R. Anti-Aircraft Corps.
Aitken, A. Danskine, Corpl.	Lowland Div., R.E.
Aitken, J. H.	14th County of London.
Aitkin, James	London Scottish.
Aldous, C. F.	Hon. Artillery Company.
Alexander, G. L.	Post Office Rifles.
Alexander, W.	Royal Scots.
Alison, Walter	3-9th H.L.I.
Allan, J. D.	4th Gordons.
Allcorn, W. J.	O.T.C.
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Allum, S. C.	12th County of London.
Amery, T. F.	R.N.V.R. Anti-Aircraft Corps.
Andrew, B. C., Lieut.	Royal Garrison Art.
Andrew, David (Jun.), Maj.	15th Batt. Highland L.I.
Andrews, P. M.	7th London, Q.V.'s Rifles.
Andrews, Stewart	A. & S. Highlanders.
Archer, H. D.	Hon. Artillery Company.
Arthur, J. Maurice, Major	Lowland Div., R.E.
Ash, G. D., Corpl.	Royal Engineers.
Ashenden, H. C., Lieut.	3rd Home Counties Bde., R.F.A.
Aslin, C. H.	Army Pay Corps.
Atkin-Berry, H. C., 2nd Lt.	14th Batt. Royal Fusiliers.
Atkin-Berry, H. G., 2nd Lt.	Royal Engineers.
Austin, H.	20th Batt. Manchester Regt.
Aylwin, G. M.	Surrey Yeomanry.
Ayrton, Maxwell	R.N.V.R. Anti-Aircraft Corps.
Bagenal, P. H. E.	R.A.M.C.
Bagshaw, A. S.	West Kent Yeomanry.
Baicsor, Thos. P., 2nd Lt.	9th King's Shrops. L. Infantry.
Bailey, H. E.	5th Seaforth Highlanders.
Baillie, A., Bombardier	3rd Highland Bde., R.F.A.
Baily, B. E., Capt.	7th. Batt. Sherwood Foresters.
Baines, C. Owen	R.E. (Devon Section).
Baines, J. C., Capt.	4th Batt. Leicestershire Regt.
Baker, F. D., Lieut.	East Lancs. Regt.
Baker, L. W.	1st LondonSanitaryCo.,R.A.M.C.
Barber, John	9th County of London Regt.
Barber, R. Alfred	Royal Naval Div. Engineers.
Barclay, F., Lieut.	4th Somerset Light Infantry.
Barden, C. E.	King's Royal Rifles.
Barefoot, H. J. L.	R.N.V.R. Anti-Aircraft Corps.
Barker, F. G.	Pioneer Batt. R.E. (Welsh Regt.).
Barlow, George, Corpl.	6th Manchester, Terr.
Barnard, H. T. B.	O.T.C.
Barnard, L. W., Capt.	16th King's Royal Rifles.
Barnett, R. R.	Royal E. Kent Yeomanry.
Barnish, F. J.	The Duke of Lancaster's Own.
Barnish, Leonard	Liverpool Scottish.
Barrow, Ernest R., Sub-Lt.	R.N.R.
Barrow, S. E., Lieut.	5th Batt. K.O.R. Lancaster Regt.
Barrowcliff, A. M., Lieut.	5th Leicestershire Regt.
Barry, C. A. R., 2nd Lieut.	8th Batt. Q.R.W. Surrey Regt.
Barry, D. H. H.	18th County of London.
Barry, F. R., Lieut.	R.F.A.
Bass, F., Major	3rd City of London.
Bastable, F. J. N.	Artists' Rifles.
Bates, C. F.	7th Royal Fusiliers.
Bath, H. Hurle	East African Pioneer Co. (Engrs.)
Battiscombe, H., 2nd Lieut.	2nd Batt. Royal West Surrey Regt.
Battle, A. N., 2nd Lieut.	9th Batt. Lincs. Regt.
Batty, J.	24th County of London.
Bax, E. G.	Artists' Rifles.
Baxter, A. C.	R.A.M.C.
Bayley, B. C. E., Sapper	Royal Engineers.
Bayne, D.	A. and S. Highlanders.
Baynes, E. S. A., 2nd Lt.	11th Batt. King's Royal Rifle Corps.
Beard, H.	Leeds City Battalion.
Beare, J. C., 2nd Lieut.	Hants Royal Engineers.
Beasley, Albert	Royal Horse Artillery.
Beattie-Brown, W. M.	17th Batt. Northumberland Fus.
Beaumont, E. E.	Artists' Rifles.
Beaumont, J. S., 2nd Lieut.	18th Batt. Manchester Regt.
Beaverstock, H.	12th Batt. Sherwood Foresters.
Beckett, R. T., Divnl. Offices	Royal Engineers.
Beckwith, H. L., Lt.-Col.	4th Batt. Loyal North Lancs. Regt.
Bedells, H. S. G.	H.A.C.
Bedingfield, R. W., Capt.	4th Batt. Leicestershire Regt.
Beeston, C. N., Lieut.	South Wales Borderers.
Bell, E. A., Lance-Corpl.	Yorks Hussars.
Bell, E. N. F., Lieut.	Royal Inniskilling Fusiliers.
Bell, T. F.	Artists' Rifles.
Bellamy, O.	R.F.A. (T.).
Benjamin, L. A., Lieut.	West Lancs., R.G.A.
Bennett, George	5th Batt. R.W. Kent Regt.
Bennett, Thorold	5th Batt. R.W. Kent Regt.
Bennett, J. S.	1st R. Scots (Edinburgh Batt.)
Bennett, Philip D., Capt.	5th Batt. Royal Warwickshire Regt.
Benslyn, W. T.	Royal Engineers.
Benson, H. C., 2nd Lieut.	9th Batt. Rifle Brigade.
Bentley, A. F. C., 2nd Lt.	Royal Field Artillery.
Berg, W. C. Von	London Rifle Brigade.
Berrill, Ralph	2nd King Edward's Horse.
Berrington, Adrian, 2nd Lt.	Royal Engineers.
Berry, A. S.	Leeds City Battalion.
Berry, Charles T.	
Berry, Harold	9th County of London Regt.
Besant, H. S.	Royal Engineers.
Bessant, J. A.	Artists' Rifles.
Beswick, A. E., Lieut.	51st Batt. Canadian E.F.
Beswick, W., Capt.	5th Royal Welsh Fusiliers.
Bevan, T. M., 2nd Lieut.	Glamorgan Yeomanry.
Bevis, R. H. P., Capt.	Royal Engineers.
Binder, W. B.	Sheffield Batt. York & Lancs. Regt.
Binge, J. W.	West Kent Yeomanry.
Binning, Alan	London Scottish.
Biram, Frank S., Capt.	5th Batt. South Lancs. Regt.
Birds, S. B., Lieut.	72nd Canadian Seaforth Highlanders.
Birkett, Stanley	21st Batt. Royal Fusiliers.
Birks, Ellis R., 2nd Lieut.	2/1 W.Y., R.F.A. (T.).
Birnsting, L. H., 2nd Lt.	17th Lancs. Fusiliers.
Bishop, H. Courtenay, 2nd Lt.	Pioneer Batt. 13th Gloucestershires.
Black, K. E.	O.T.C.
Blackburn, H. A., Sapper	Royal Engineers.
Blackford, A. G.	Artists' Rifles.
Blackford, F.	Queen's Own Hussars.
Blake, Fredk.	Black Watch.
Blampied, R. C., Lieut.	Jersey Royal Militia.
Blomfield, C. J., Capt.	Artists' Rifles.
Bluhm, Q. M., Capt.	8th Manchester Regt.
Blyth, C. K.	3/15th London Regt.
Bogle, J. M. L., Lieut.	Lancs., R.E.
Bolton, C. W. B.	Royal Engineers.
Bond, A. G., Lieut.	R.E. Rly. Transport Estabmt.
Bond, C. J., Driver	R.A.M.C.
Bone, C. B., Capt.	4th Batt. Devon Regt.
Bonser, K. J.	24th County of London.
Booth, G. B., 2nd Lieut.	12th Batt. Middlesex Regt.
Boshier, G. E.	Oxford & Bucks L. Infantry.

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Bosting, Milton	Royal Engineers.
Botting, M.	Royal Engineers.
Bowden, Ernest E., Sergt.	16th Batt. Middlesex Regt.
Bowen, R., Trooper	Cheshire Yeomanry.
Bowen, R.	Royal Glos. Hussars.
Bowes, Roy	P.S. & U. Batt. Royal Fusiliers.
Bowhill, F. J.	Naval Brigade (Prisoner of War).
Bowie, G. P., Lieut.	5th Batt. 2nd Infantry Canadian Force.
Bowles, B. G., 2nd Lieut.	9th Batt., The Buffs.
Bowman, D.	O.T.C.
Bowman, H.	O.T.C.
Bownass, J. E.	Princess Patricia's Canadian L. Infantry.
Boyd, J. S.	City of Glasgow Batt., H.L.I.
Brace, A. G.	Royal Engineers.
Brady, A.	7th Batt. Royal Dublin Fusiliers.
Braine, R.	London Scottish.
Brewerton, F. A., 2nd Lt.	3/1st East Lancs., R.E.
Brewill, A. W., Lieut.-Col.	7th Batt. Sherwood Foresters.
Brian, A. G., 2nd Lieut.	10th Duke of Cornwall's L.I.
Bricknell, T. M.	R.N.V.R., London Division.
Bridgman, Gerald S.	Royal Engineers.
Brierley, Reginald B., 2nd Lt.	18th County of London.
Bright, T. L.	Civil Service Rifles.
Brine, H.	R.N. Flying Div. Balloon Wing.
Brinton, S., Sapper	Northumbrian Division, R.F.A.
Brittan, H. W., 2nd Lieut.	3rd Batt. Worcester Regt.
Broad, G. L.	
Brodie, Robert	Glasgow Highlanders.
Bromet, J. M.	60th Batt. Canadian Rifles.
Brooks, C. J., Lieut.	1st City of London Fusiliers.
Brough, J. Lindsay	
Brown, A.	Royal Engineers.
Brown, C. W., Sapper	Royal Engineers.
Brown, E. H.	7th Batt. Notts & Derby Regt.
Brown, F. C., Sapper	Royal Engineers.
Brown, J. Boyce, Lieut.	6th Batt. Hampshire Regt.
Brown, John, Capt.	4th Batt. Northants Regt.
Brown, K. H.	4th Gordons
Brown, T. L., 2nd Lieut.	15th Batt. Northumberland Fus.
Brown, R. L.	23rd Royal Fusiliers.
Brown, William	Q.O. Royal Glasgow Yeomanry, R.Q.M.S.
Brown, W. J.	Royal Engineers.
Brownrigg, A. H., Lieut.	Royal Marines.
Bruce, D. P.	Black Watch.
Bruce, J. C. C., 2nd Lieut.	Northumberland Divnl. Engrs.
Brundle, H. Carleton	12th Batt. Lancs. Fusiliers.
Bryce, M. S.	14th County of London (Killed).
Bryett, A. G.	Royal Engineers.
Buchanan, Alan	Glasgow Hussars.
Buckley, F. A., Capt.	11th Welsh Regt.
Bull, J. W., 2nd Lieut.	2nd East Lancs. Regt.
Bullen, G., Driver	1st City of London Field Ambulance Transport.
Bullock, G.	3rd Highland Brigade., R.F.A.
Bulmer, F. H.	R.A.M.C.
Bunce, H. E.	Royal Engineers.
Burchett, N. W.	Queen's Westminsters.
Burford, J.	Artists' Rifles.
Burge, Bruce, Sergt.	4th Batt. Border Regt.
Burgess, G. D.	East African Rifles.
Burgess, Horace	Royal Engineers.
Burgoyne, J. A.	2nd Monmouth Regt.
Burke, J. E., Sergt.	South Irish Horse.
Burleigh, H.	O.T.C.
Burnett, A. S., Lieut.	5th Hants Regt.
Burnett, E.	King's Royal Rifles.
Burnie, Thos. J.	London Scottish.
Burnley, Tom	2nd London R.A.M.C.
Burrows, E. R., Sub-Lieut.	R.N.R., H.M.S. "Hecate."
Burton, G. B.	6th Batt. King's Liverpool Regt.
Burton, L., Sergt.	H.A.C.
Bush, F. T.	29th Batt. Vancouver Regt.
Bushell, Thomas O.	29th Batt. Vancouver Regt.
Butler, A. S. G., 2nd Lieut.	R.F.A.
Butler, W.	R.A.M.C.
Butler, W. M.	Royal Engineers.
Butt, C. T., 2nd Lieut.	5th Middlesex Regt.
Butt, P., 2nd Lieut.	Royal Engineers.
Byrt, S. H.	O.T.C.
Cabuche, H. L., Capt.	13th Batt. London Regt.
Callender, G. W., 2nd Lieut.	13th Batt. Worcester Regt.
Calvert, C. H.	R.H.A.
Cameron, R. N., Capt.	2/4th Royal Scots Batt.
Campbell, Duncan A., Capt.	10th Batt. Liverpool Scottish.
Caple, W. H. Dashwood, Major	Royal Engineers.
Capon, G.	4th London Howitzer Bde..O.T.C.
Cappon, T. M.	Black Watch Recruiting Officer.
Carder, W. J. T., Capt.	5th Devons (T.).
Carey, J., L.-Corpl. Piper	London Scottish (killed).
Carlyon-Hughes, B. J. S., Lt.	5th Batt. Essex Regt.
Carmichael, D. A., 2nd Lt.	7th Batt. Royal Fusiliers.
Carswell, J. E.	9th Batt. H.L.I.
Carswell, Ronald, 2nd Lt.	11th Batt. Royal Highlanders.
Cart de Lafontaine, P., Capt.	1/4th London Regt.
Carter, J.	Northumberland Hussars, I.Y.
Carter, W. A. F., L.-Corpl.	Hants (T.), R.E.
Carus-Wilson, C. D.	1st County of London Yeomanry.
Castleman, P. O.	Royal Engineers.
Castley, Jesse	10th Batt. Middlesex Regt.
Cattanach, Alexander, Lt.	4th Camerons (twice wounded).
Cavanagh, L.	B.E.F.
Cave, Walter	Chief Petty Officer R.N.V.R., Anti-Aircraft Corps.
Cawthorne, A. S., 2nd Lt.	K.O. Royal Norfolk Yeomanry,
Cayley, C., Lieut.	Mon. Regt.
Chadwick, J., Major	Oxford & Bucks Light Infantry.
Chaikin, B.	2nd London Sanitary Co.
Chalmers, F. R.	2nd London Sanitary Co.
Chambers, G. E.	Special Service.
Champion, H. D., L.-Corpl.	Berks Yeomanry.
Chappell, A. E. W., L.-Corpl.	24th County of London.
Charles, R. D. S., 2nd Lt.	5th City of London.
Charlewood, G. E., 2nd Lt.	4th Northumberland Fusiliers.
Chaundler, J. H.	Chief Petty Officer R.N.V.R. (Aircraft).
Cheesewright, G., Lieut.	North Midland, R.F.A.
Cheriton, W. G. L., Lieut.	6th Batt. Royal Lancs. Regt.
Chester, J. L., Lieut.	9th Liverpool Regt. (Killed).
Cheston, J. A.	H.A.C.
Chetwood, H. J.	Artists' Rifles.
Chilton, E. A.	R.A.M.C.
Ching, W. T., 2nd Lieut.	R.F.A., Special Reserve.
Chisholm, D. J.	London Scottish.
Christie, J. F., Driver	14th County of London.
Clark, G. G., 2nd Lieut.	Durham, R.G.A.
Clark, H. S.	A.S.C.
Clark, James	1st City of Glasgow H.L.I.
Clark, R. C.	7th Royal Fusiliers.
Clark, T. W.	R.A.M.C.
Clark, W. L., 2nd Lieut.	15th Batt. Middlesex Regt.
Clarke, John M.	Artists' Rifles.
Clarke, L. H.	5th West Yorks.
Clarke, S. Chatfield, Major	Artists' Rifles.
Clay, H. S. F., Lieut.	Army Service Corps.
Claydon, L.	R.N.V.R. Anti-Aircraft Corps.
Clayton, Harry, Lieut.	South Notts Hussars.
Clemes, F.	Hertfordshire Yeomanry.
Clemesha, F. Chapman, Lt.	Canadian A.S.C.
Coates, W. V., Lieut.	9th Batt. Norfolk Regt.
Cogswell, A. E., Major	1st Wessex Bde., R.F.A.
Cole, E. R. F.	3rd City Batt. King's Liverpool Regt.
Cole, L. E., 2nd Lieut.	11th Batt. Yorks L. Infantry.
Coleridge, J. D., Sub-Lieut.	R.N.V.R.
Coleridge, P. H., Lieut.	16th Sherwood Foresters.
Collin, B. P.	Canadian Expeditionary Force.
Collins, O. H., 2nd Lieut.	4th Batt. Royal Berkshire Regt.
Collinson, G. F., Lieut.-Col.	10th Batt. Suffolk Regt.
Colquhoun, E. F. S., Capt.	Monmouth Regt.
Colthurst, W. B.	Somersetshire Regt.
Colville, D.	24th Batt. Canadian Expeditionary Force.
Constable, Wm. I.	
Cook, A. B. K., 2nd Lieut.	12th Batt. Royal Fusiliers.
Cook, J. O., Capt.	2/20th Batt. County of London Regt.
Cooke, R. F., Lieut.	5th Gloucesters.
Cooke, R. McDonald, Lieut.	Gloucester Regt.
Cooke, W. H. T.	Artists' Rifles.
Cooksey, H. T., Gunner	1st Res. Battery London Regt., R.F.A.
Cooksey, R. A., 2nd Lieut.	Royal Engineers.
Coombs, D. W.	Territorials.
Cooper, A.	Royal Engineers.
Cooper, C. M., Lieut.	3rd Durham Light Infantry.
Cooper, E. P., 2nd Lieut.	1st East Yorkshire Regt.
Cooper, Wm.	3rd Batt. Duke of Westminster's.
Cope, G. A., 2nd Lieut.	Cornwall R.G.A.
Corbett, A. E., 2nd Lieut.	11th (S.) Batt. Border Regt.
Corblett, C. J.	R.N.V.R. Anti-Aircraft.
Corlette, H. C., Major	King Edward's Horse.
Cottingham, G. R.	5th Royal West Kent Regt.
Cotton, P. P., Sub-Lieut.	Royal Naval Division.
Coulson, R. C.	24th Batt. City of London Regt.
Coupland, W. V.	4th London Brigade, A.S.C.
Cowdell, C. J. M.	Univ. and Public Schools Corps.
Cowley, H. R., 2nd Lieut.	Hampshire (Fortress), R.E.
Cowman, A.	Royal Field Artillery.

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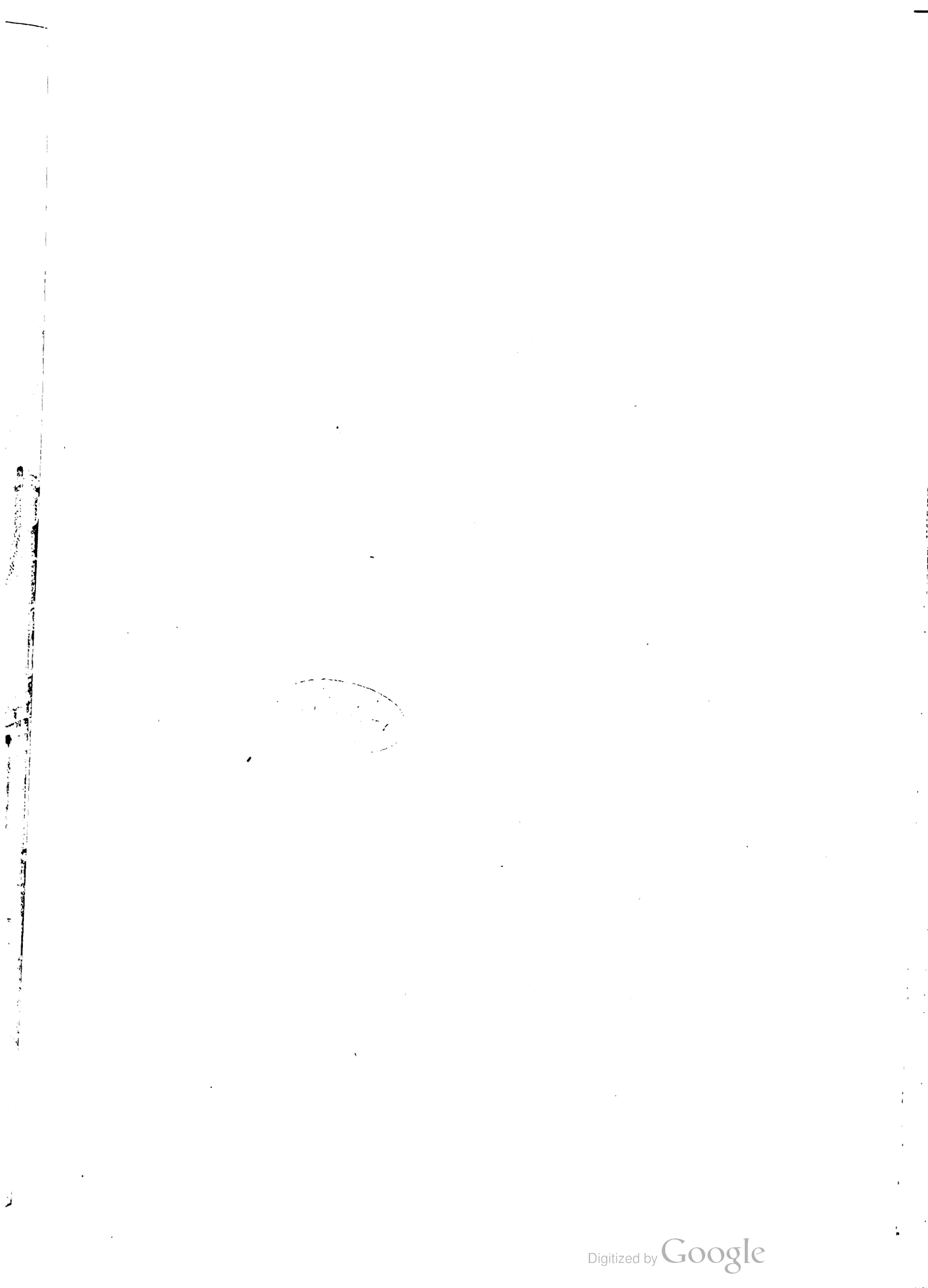


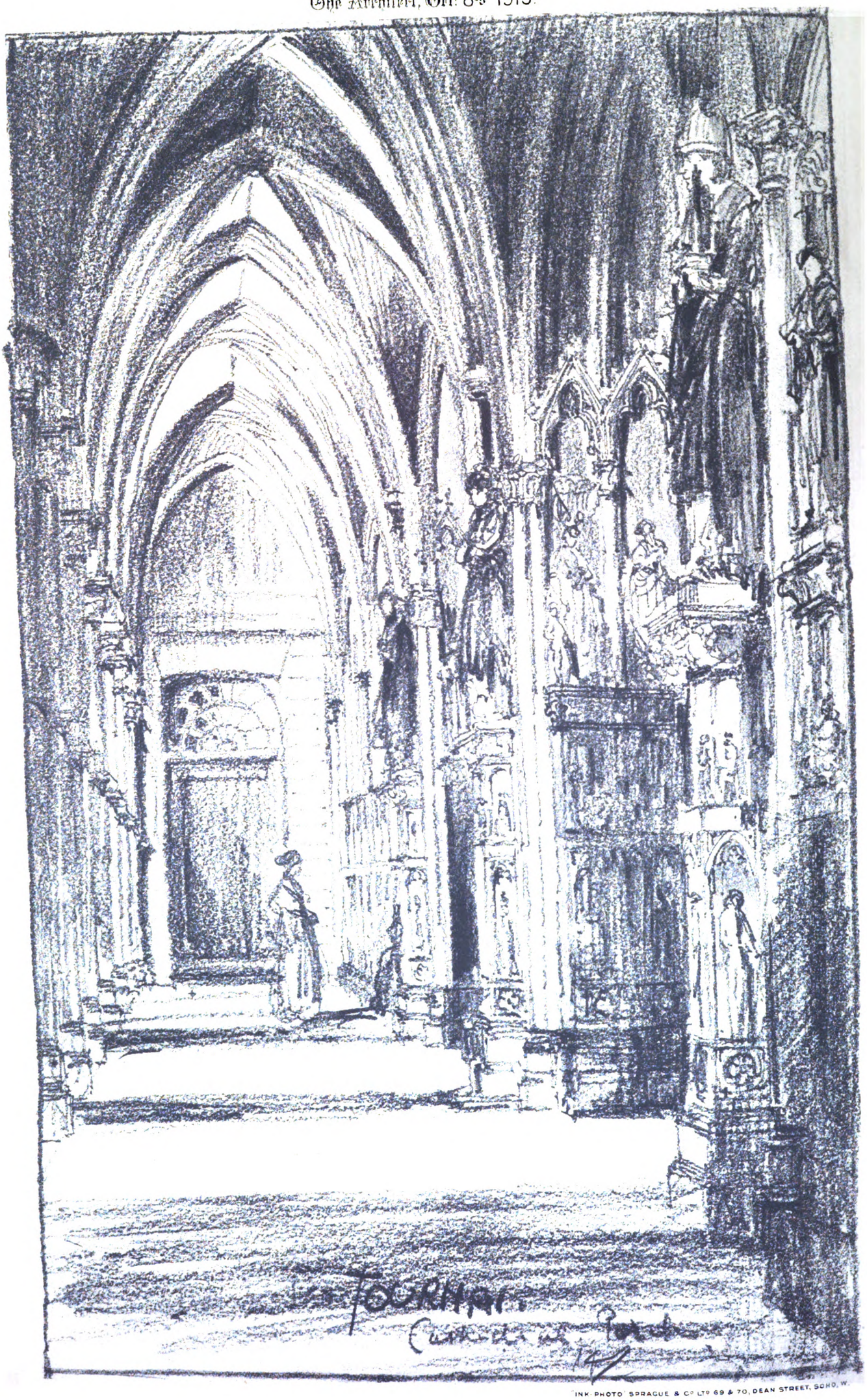
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THE BELFREY ABBEVILLE, FRANCE

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PORCH OF CATHEDRAL, TOURNAI, BELGIUM.

From a Drawing by Mr. ROBERT C. KENNARD.

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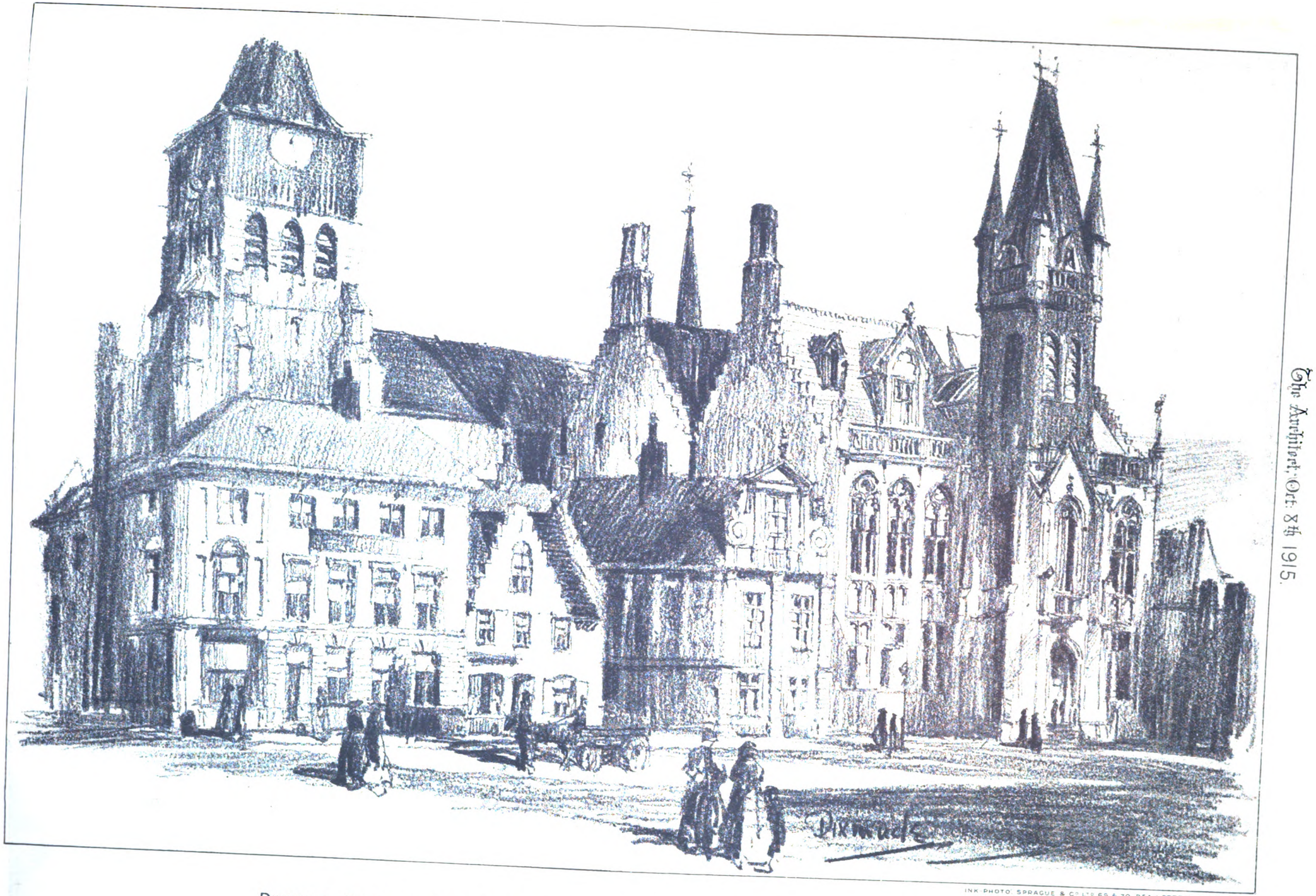
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IN THE GRAND PLACE, YPRES, BELGIUM.

From a Drawing by Mr. ROBERT C. KENNARD.

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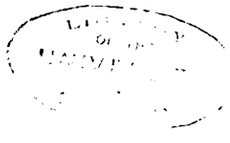
DIXMUDE, BELGIUM: VIEW OF TOWN HALL AND CHURCH OF ST. JOHN (NOW DEMOLISHED)

From a Drawing by Mr. ROBERT C. KENNARD

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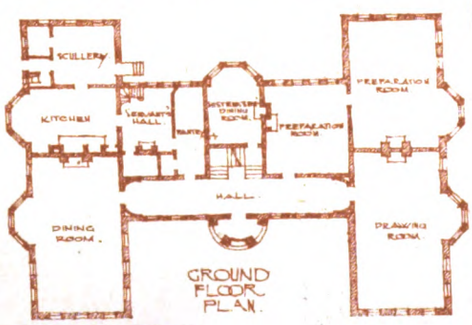


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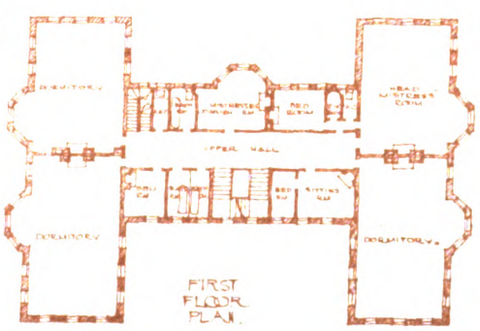
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8th 1915.



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OLD
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ARNOLD MITCHELL
F.R.I.B.A. ARCHT.
17 HANOVER SQ. W.

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Cowper, J. B. F.	Royal Engineers.
Cox, N. W. T.	Royal Engineers.
Craig, F. B., Lieut.	11th Hants Regt.
Craigie, J. H., Lieut.	7th Batt. Highland L. Infantry.
Crane, Lionel F., 2nd Lieut.	2/5th Res. Batt. R.W. Surrey Rgt.
Cranfield, Sidney W., Capt.	Middlesex Regt.
Crawford and Balcarres, Rt. Hon. The Earl of	R.A.M.C.
Crawford, Chas.	Staff Records Office.
Crawford, William	Royal Engineers.
Cresswell, W. D.	16th Middlesex Regt.
Creswell, W. T., Capt.	Royal Engineers Services.
Crickmay, G. H., Lieut.	Royal Engineers.
Croft, C.,	O.T.C.
Crombie, W. F., Capt.	5th King's Own Scottish Bordrs.
Crome, J. S.	8th Essex Cyclist Reserve.
Cromie. Robt., Lieut.	Staff Royal Engineers.
Crone, Harold, 2nd Lieut.	Royal Engineers.
Crook, W. W.	9th London, Q.V. Rifles.
Crowe, J., Corpl.	25th County of London (Cyclist).
Cruickshank, D. E., 2nd Lt.	10th Border Regt.
Cruickshank, W. S.	4th Gordons.
Crump, T. G., Lieut.	Army Service Corps.
Cubey, J. B., 2nd Lieut.	23rd Batt. Northumberland Fus.
Cule, D. M.	South Wales Borderers.
Cullen, Alex.	O.T.C.
Cullen, D. S.	R.A.M.C.
Culliford, L. A.	Royal Engineers.
Cunliffe, T. H.	9th Batt. Manchester Regt.
Curd, P. J.	R.N.V.R.
Curtis, S. Carey, Capt. Hon. Major	Guernsey Militia.
Dalby, H. S.	1st County of London Yeomanry.
Dale, T. L., 2nd Lieut.	9th Batt. York and Lancs. Regt.
Dalgleish, K., 2nd Lieut.	4th Leicester Regt.
Danby, H. H.	Royal Engineers.
Dane, H. E.	Royal Engineers.
Dangerfield, B.	1st Batt. Royal Naval Division.
Dangerfield, P.	Artists' Rifles.
Davidge, H. E. J.	Royal Engineers.
Davidson, Gerald	R.A.M.C.
Davidson, J. M.	
Davidson, Sam.	9th Royal Scots.
Davidson, T. Gerard	Sportsmans' Batt. Royal Fus.
Davies, A. H., Major	4th Welsh Bde., R.F.A.
Davies, David C.	Remount Dept., A.S.C.
Davies, Evan, Sapper	Royal Engineers.
Davies, F. P. W., Lieut.	Royal Field Artillery.
Davies, G. H., Staff Sergt.	Sanitary Section, 53rd (Welsh) Division.
Davies, H. F., 2nd Lieut.	1/5th Cheshire Regt. (Killed).
Davies, R. Cecil, Major	Royal Engineers.
Davies, W. E.	Artists' Rifles.
Davies, W. J.	Chief Petty Officer, R.N.V.R.
Davis, Claude, Lieut.	2nd Birmingham Batt. Royal Warwicks.
Davis, H. S., Capt.	5th Batt. Gloucester Regt.
Davis, H. S., Lance-Corpl.	S. Midland Royal Engineers.
Davison, W. R., 2nd Lieut.	Northumbrian Howitzer Brigade.
Dawson, C. Ford, Capt.	4th Essex Regt.
Dawson, D. J. S., 2nd Lt.	4th Reserve Batt. Essex Regt. (deceased).
Dawson, N. J., Capt.	1st Middlesex Div., A.S.C.
Dawson, W. F., Corpl.	Leeds City Batt.
Day, M.	Artists' Rifles.
Day, N. F. C.	Artists' Rifles.
Deacon, W. T.	Royal Engineers, Cheshire.
Deakin, F. M.	H.A.C.
Deas, Edwin H.	Scottish Horse.
Dempster, John	Royal Engineers.
Denton, C. W.	City of London Yeomanry (Roughriders).
Derry, D. C.	Red Cross Motor Ambulance.
Detmold, F. G., 2nd Lieut.	R.G.A.
Dewar, John N.	Lochiel's Cameron Highlanders.
Dewar, Robt. J.	2nd Dragoons.
Dick, Robt. Burns	Tynemouth R.G.A.
Dicken, A., Sub-Lieut.	R.N.V.R. (Killed).
Dickeson, C. A.	New Zealand Expeditionary Force.
Dickie, Professor A. C., Lt.	Manchester Univ., O.T.C.
Dickinson, P. L., Musketry Officer	Dublin School of Instruction.
Dicksee, H. J. H.	Artists' Rifles.
Diveri, A. B.	6th Gordons.
Dixon, C. B., Lieut.	13th Batt. York and Lancs. Regt.
Dixon, H. R.	R.A.M.C.
Dixon, P. F.	Motor Machine Gun.
Dixon-Spain, J. E., Lieut.	Royal Field Artillery.
Dobie, John B. P., 2nd Lt.	5th Royal Scots.
Dobson, W. E.	Motor Ambulance Red Cross.
Dodd, H. A., Lieut.	17th Batt. King's Liverpool Regt.
Doll, M. H. C., 2nd Lieut.	13th Hussars.
Donaldson, B.	Northumberland Hussars.
Donnelly, C. C., Capt.	Canadian Troops.
Dossor, J. N., Capt.	2nd Northumberland R.F.A.
Douglas, A. H.	H.A.C.
Douglas, J. W., Major	Northumbrian Div., R.E.
Douglass, H. A., Capt.	C.L.B. Batt., King's Royal Rifle Corps.
Dowdeswell, W., Capt.	5th Welsh Regt.
Downton, A. M., 2nd Lieut.	2nd West Lancs., R.F.A.
Dowsett, T. W., Sergt.	H.A.C. (Deceased).
Draper, W. B. Y., Lieut.	Royal Engineers.
Dunbar, Morrison	Territorials.
Dunbar, Wm. C.	Territorials.
Duncan, L.	Highland Cyclists' Batt.
Duncan, T. V.	48th Highlanders, Canada.
Duncanson, E. F.	Motor-Boat Reserve.
Dunkerley, L. B. B., Lieut.	24th Batt. Manchester Regt.
Dunn, F. W. N.	5th Welsh Regt.
Durnford, W. J.	R.A.M.C.
Durston, C. C., Lieut.	H.A.C.
Dury, A. B.	London Rifle Brigade.
Dyer, Frank	6th West Yorks.
Eade, A.	Univ. and Public Schools Corps.
Earle, Frank, Capt.	Staff, Royal Engineers.
Earle, L. M.	24th County of London.
Eaton, Alex. R. C., 2nd Lieut	9th Batt. Bedfordshire Regt.
Eaton, G. M.	O.T.C.
Ebbs, E. H. M.	R.N.A.S.
Edge, W. F., 2nd Lieut.	2/8th Worcesters.
Edge, W. F.	H.A.C.
Edgecumbe, J. H.	Royal Engineers.
Edwardes-Evans, J.	P.S. and U. Batt. Royal Fusiliers.
Edwards, Hulett	R.N.V.R. Anti-Aircraft.
Eiloart, R. E.	R.A.M.C.
Elliott, R. D., 2nd Lieut.	9th Batt. Shropshire L. Infantry.
Ellis, C. E., 2nd Lieut.	H.A.C.
Ellis, E. M., Lieut.	H.A.C.
Elsworth, L. A., 2nd Lieut.	10th Batt. York and Lancaster.
Elsworth, W. M., Trooper	Northants Yeomanry.
Elwes, R. Jervase	Grenadier Guards.
Emberton, J., Gunner	H.A.C.
Emerson, Ernest, 2nd Lieut.	Royal Field Artillery.
Emery, Burkett J., 2nd Lt.	2nd Birmingham Batt. Royal Warwicks.
English, Eric, 2nd Lieut.	13th West Yorks, attached 1/8th Manchester Regt. (Killed).
Errington, L. R. G., Sergt.	A.S.C.
Eshelby, J. M., 2nd Lieut.	11th Batt. Middlesex Regt.
Evans, A. F. F.	1st City Batt. King's Liverpool Regt.
Evans, G. L., Capt.	6th Batt. Essex Regt.
Everleigh, Graham T.	5th Batt. Somerset L. Infantry.
Fairee, W. C., Lieut.	Royal Field Artillery.
Fairtlough,	Artists' Rifles.
Falkner, H., Corpl.	Royal Engineers.
Faraday, S., 2nd Lieut.	4th Cheshire.
Farey, C. A., Lieut.	A.S.C.
Farmer, Eric	U.P.S. Batt. Royal Fusiliers.
Faulkner, H.	Royal Engineers.
Fausset, S. S.	9th Batt. Liverpool Regt.
Fawckner, E. H., Major	3rd Batt. Monmouthshire Regt.
Featherstonhaugh, H. L.	Canadian Field Artillery.
Felkin, S. D. Proby, Flight Sub-Lieut.	Royal Navy.
Ferguson, Jas.	Royal Engineers.
Ferguson, N. S.	R.A.M.C.
Ferrier, G. C. C., 2nd Lieut.	4th Royal Fusiliers.
Ferrier, J. S., 2nd Lieut.	10th Northumberland Fusiliers.
Ferris, J. J.	North Irish Horse.
Fiennes, Hon. Lawrence C.	Royal Flying Corps.
Fildes, G., 2nd Lieut.	3rd Batt. Coldstream Guards.
Filkins, E. W.	R.A.M.C.
Fincham, E.	7th Batt. Notts and Derby Regt.
Fincher, P. R.	R.A.M.C.
Firth, J. Percy, Capt.	1/4th Batt. K.O.Y. L. Infantry.
Fish, D. H., 2nd Lieut.	Royal Field Artillery, 18th Div.
Fisher, H. N.	O.T.C.
Fisher, J. W., Major	4th Batt. Northampton Regt.
Fisher, K. J.	4th City Batt. King's Liverpool Regt.
Fisher, R. M.	Scottish Horse.
Fisher, S. H.	O.T.C.
Fleming, A. J.	
Fletcher, G.	Motor Cycle Despatch Rider.
Fletcher, H. Philips, Major	1st County of London Yeomanry.

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Flockton, C. B., Capt.	W.R.D., R.E.
Flontiex, L. A.	
Flower, Victor, Major	13th Batt. London Regt.
Floyd, F. H., Corpl.	19th Batt. Royal Fusiliers.
Forbes, W. A. Stanhope, 2nd Lieut.	Military Forwarding Estabmt.
Ford, James S.	Royal Scots.
Ford, Lawton S., 2nd Lieut.	3rd Batt. Royal West Surrey.
Ford, P.	Artists' Rifles.
Fordham, A.	5th Gloucesters.
Forster, D. A.	Royal Engineers.
Forster, C. J.	O.T.C.
Fortescue, G. A., 2nd Lieut.	7th Essex Regt.
Forwell, E. S. W.	Scottish Horse.
Forwell, J. E.	Forfar Highland Cyclists' Batt.
Foster, Frank	Royal Engineers.
Foster, Leonard	Leeds City Batt.
Foster, P.	Public Schools Batt.
Foster, R. C., 2nd Lieut.	Royal Engineers.
Foster, S. S.	Sheffield Batt. York and Lancaster Regt.
Fowler, E. G., Capt.	N. Midland Div., A.S.C.
Fowler, R. H., Capt.	5th Batt. Lincolnshire Regt.
Frame, R.	Glasgow Highlanders.
France, E. C.	Artists' Rifles.
Francis, C. E.	Artists' Rifles.
Francis, G. E., Sapper	Royal Engineers.
Frank, F. D.	Royal Engineers.
Franklin, T. W.	11th Welsh Regt.
Fraser, Gilbert, Lieut.	1st City Batt. King's Liverpool Regt.
Frazer, L., Capt.	4th Hants Regt.
Freaker, Alan L.	Artists' Rifles.
Froud, Denis C. M.	Gloucestershire Regt.
Froud, Maynard, Supt.	St. John's Ambulance Brigade.
Fry, P. G., Major	27th Division 2nd Wessex.
Furner, A. S., Leader	Y.M.C.A. Huts.
Fyfe, Neilson, Colour-Sergt.	4th Royal Scots.
Galletly, J. T.	Lothian and Border Horse.
Gallie, Chas.	Royal Horse Artillery.
Galloway, J. B.	3rd Highland R.F.A.
Galpin, W. Frank	London Rifle Brigade (Killed).
Garbutt, W. T.	6th West Yorks Regt.
Gardner, W. H. R., Motor Despatch Rider	Att. Indian Cavalry.
Garner, P. T.	R.A.M.C.
Garrett, S. C., Lieut.	1st Home Counties R.E.
Gaunt, O., Lieut.	R.F.A., 41st Brigade.
Gaymer, B. P.	Royal Engineers.
Geater, R. N.	East African Pioneer Company (Engineers).
Geeson, H. L.	East African Rifles.
George, Alfred, L.-Gorpl.	A.O.C.
George, Conrad E., L.-Corpl.	8th Batt. Royal West Surrey Regt.
German, H. V., Sergt.	3rd C.M.R.R. (Canada).
Gibbs, A. H.	Royal Navy.
Gibbs, H. B. S., Lieut.	Artists' Rifles.
Gibson, E. H.	R.N.V.R.
Gibbons, J. H.	H.A.C.
Giles, C. M.	East African Rifles.
Gill, H. P.	13th Batt. Sherwood Foresters.
Gillispie, J., Lieut.	Black Watch.
Gilmore, G. T., 2nd Lieut.	4th Batt. Somerset L. Infantry.
Glass, Chas. W., 2nd Lieut.	Argyll and Sutherland Highlanders.
Glass, J. G. L.	14th County of London.
Glazebrook, F. H.	5th Batt. King's Liverpool Regt.
Glencross, L. H.	Artists' Rifles.
Glennie, F. F.	2/4th Royal Sussex Regt.
Glover, A.	London Scots.
Glover, D. S., 2nd Lieut.	4th Batt. S. Staffordshire Regt.
Goodhart-Rendel, H. S., 2nd Lieut.	Grenadier Guards.
Godman, C. R. B., Major	4th Royal Sussex Regt.
Godwin, C. C., 2nd Lieut.	Oxon and Bucks L. Infantry.
Godwin, W. Hubert, 2nd Lt.	Royal Engineers.
Gold, H. A.	4th Royal West Kent Regt.
Goldsmith, G. H., Capt.	2/5th Lancs. Fusiliers.
Gomm, J.	16th County of London Regt.
Gomme, L. J.	11th County of London Batt.
Gonner, E. D. L.	10th (Scottish) Batt. King's Liverpool Regt.
Goodwin, A. Laurie, Sergt.	Lothian and Border Horse.
Gordon, D. G., 2nd Lieut.	8th Batt. Border Regt.
Gordon, Joseph	Royal Engineers.
Gorringe, W. S.	Sussex Yeomanry.
Gosling, J. H. C., Sergt.	Cycling Corps, 9th Hampshire Regt.
Gossling, H. F.	Artists' Rifles.
Gotch, L. M., Sergt.	Royal Engineers.
Gottwalty, Phillip, Lieut.	South Wales Borderers.
Gough, R. I., Lieut.	2nd Birmingham Batt. Royal Warwicks.
Goulder, A. C., Lieut.	Artists' Rifles.
Graham, H. Irving, 2nd Lt.	Northumberland Div., R.E.
Graham, P. G., 2nd Lieut.	Northumberland Fusiliers.
Grant, C.	Army Service Corps.
Grant, J. P. D.	
Grant, T. F. W., 2nd Lieut.	Royal Engineers.
Gray, C. H., 2nd Lieut.	Royal Engineers.
Gray, D. R., 2nd Lieut.	12th Batt. Worcester Regt.
Gray, Geo. H., 2nd Lieut.	Durham Royal Engineers.
Gray, G. W., 2nd Lieut.	14th R.W.F.
Gray, J. H.	Anglo-Belgian Ambulance Corps.
Greatorex, A. D., Lieut.	2/6th South Staffs Regt.
Green, B. W.	Middlesex Hussars.
Green, H., Sapper	Royal Engineers.
Greenall, J. B., Lieut.	9th Batt. Cheshire Regt.
Grellier, C., 2nd Lieut.	10th Batt. Hampshire Regt. (Wounded).
Gresswell, H.	Artists' Rifles.
Grice, W. S.	Artists' Rifles.
Griffin, D. M., Sergt.	18th Batt. Liverpool Regt.
Griffin, H.	R.A.M.C. Sanitary Section.
Griffiths, W.	5th Welsh Regt.
Grissell, T.	Artists' Rifles.
Grosvenor, H. O. W.	R.N.V.R.
Grote, A. L.	Musketry Instructor.
Ground, J. K.	H.A.C.
Grout, Philip, Lieut.	Royal Engineers.
Groves, F. N., Lieut.	Monmouth Regt.
Gutteridge, R. F., Capt.	15th Batt. Hampshire Regt.
Gutteridge, R. H.	Artists' Rifles.
Hack, M. S., Q.M.S.	Artists' Rifles.
Hadley, W. J., Sergt.	South Wales Borderers.
Hadwen, Noel W., 2nd Lt.	Duke of Wellington's Regt.
Haig, W. M. N.	
Haile, Wilgred L.	North Somerset Yeomanry.
Hake, G. D. G., 2nd Lieut.	1st Batt. Wiltshire Regt.
Hale, Harry T.	Sheffield Batt. York and Lancs. Regt.
Halfhide, F. W.	O.T.C.
Hall, A. E., Corpl.	12th Hants Regt.
Hall, A. W., Capt.	Artists' Rifles.
Hall, B. E., 2nd Lieut.	1st City of London Fusiliers.
Hall, D. Carby, Capt.	A.S.C.
Hall, E. Stanley, 2nd Lieut.	2/5th Royal West Surrey Regt.
Hall, G. L. Desmond, Lieut.	13th London Batt. Princess Louise's Own.
Hall, H. J.	Glamorgan Yeomanry.
Hall, J. Lockwood, Lieut.	S.A. Engineering Corps.
Hall, R. L. Carby, Capt.	W.R. Divisional T. and S.
Hall, Stanley A., Lieut.	25th Cyclists' Batt., C. of L. Regt.
Halley, J. M. W., 2nd Lt.	Royal Engineers.
Halliday, W. R., L.-Corpl.	Sherwood Foresters.
Hamilton, J. B. M., Lieut.	Gordon Highlanders.
Hamilton, T. C., 2nd Lieut.	23rd Northumberland Fusiliers.
Hammond, F. S., Capt.	11th County of London Batt.
Hampton, W. O.	Royal Engineers.
Hands, J. G.	Artists' Rifles.
Harbottle, E. J., Capt.	4th Wessex Bde., R.F.A.
Hardcastle, W. J. (V.D.), Lieut.-Col.	Staff 10th Division New Army.
Harding, A. Clifford	1st Monmouth Regt.
Harding, Chas.	Naval Volunteers.
Hardman, Adrian, 2nd Lieut.	6th Batt., Royal Fusiliers.
Hare, J. T. V., 2nd Lieut.	10th Middlesex Regt.
Harkess, W.	R.N.V.R.
Harlock, Harold	R.N.V.R. Anti-Aircraft Corps.
Harper, Sidney A., 2nd Lt.	3rd Batt. Cheshire Regt.
Harrild, F.	O.T.C.
Harrington, C. A.	1st Canadian Grenadier Guards.
Harris, A. L.	Royal Engineers.
Harris, Alfred, Major	8th City of London, R.F.A.
Harris, F. L.	London Field Ambulance.
Harris, L. T.	Univ. and Public Schools Batt.
Harris, P. Capes	3rd City of London R.A.M.C.
Harris W. H.	28th County of London Regt.
Harrison, A. St. B.	Artists' Rifles.
Harrison, John	O.T.C.
Harrison, W. H.	East Lancs. Regt.
Hart, G. W.	Royal Engineers.
Hartmann, C. Herbert	Artists' Rifles.
Harvey, Claud C.	9th Batt., H.L.I.
Harvey, D.	R.A.M.C.
Haslam, C., Lieut.	W. Riding Rgt. (Skipton "Pals").
Haslam, J., Sergt.	Artists' Rifles.
Haslam, J.	Uganda Volunteer Company.

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(*Continued from page* 288.)

executed (Lawford *v.* the Billericay Rural District Council, 1903, 1 K.B., 772). In dealing with local authorities, it must be remembered that although a Rural District Council is in exactly the same position as a non-municipal corporation in regard to contracting under seal, the law as regards Urban authorities is considerably modified by the provisions of Section 174 of the Public Health Act, 1875. Subsection (1) is of such importance as to merit some consideration. It provides that every contract made by an urban authority, whereof the value or amount exceeds fifty pounds, shall be in writing, and sealed with the common seal of such authority. The leading case in this sub-section is Young *v.* Mayor, &c., of Leamington, 1883, 8 A.C., 517, which was decided by the House of Lords. In that case the defendant Council entered into a contract under seal with one Powis, for supplying their district with water. Powis failed to complete his contract, and it was put an end to. The Council therefore by resolution authorised their engineer and surveyor to enter into a contract for completing the works. For this purpose the engineer and surveyor, as agent for the Council, entered into a contract with the plaintiff which was not under seal. The plaintiff fully completed the works, which the Council took possession of and accepted, and of which they continued to enjoy the benefit. It was held that the provisions of Section 174 (1) of the Act of 1875 are obligatory and not merely directory, and that as the contract was not under seal the plaintiff was not entitled to recover. This case followed the earlier case of Hunt *v.* Wimbledon Local Board, 1878, 4 C.P.D., 48, in which a similar decision had been arrived at by the Court of Appeal, where plans had been prepared by the plaintiff, an architect, for new offices for the defendants. It would appear, however, that a subsequent ratification under seal of a contract which was not under seal is sufficient to comply with the requirements of the sub-section (Brooks, Jenkins & Co. *v.* Torquay Corporation, 1902, 1 K.B., 601). It has been held that contracts for a less amount than fifty pounds need not be under seal nor in writing (Hunt *v.* Wimbledon Local Board, supra). Nor does the sub-section apply to a contract the value or amount of which, in fact, exceeds fifty pounds if the parties at the time of entering into it did not contemplate that it should exceed that sum (Eaton *v.* Basker, &c., 1881, 7 Q.B.D., 529).

Certificates.—Before passing to a brief consideration of the points where law touches the practice of each of the principal branches of engineering, one other general matter must be mentioned—namely, the responsibility of the engineer in the giving of certificates. In ascertaining the amount due to a contractor, the engineer is acting in a quasi-judicial capacity, and in the absence of fraud an action will not lie against him for negligence in the performance of this duty. It has been held, however, that the ordinary clause providing for the giving of certificates during the progress of the work is not a submission to arbitration, nor is the certificate itself an award. Contracts are frequently drawn so as to make the giving of a certificate by the engineer a condition precedent to payment. In such cases the amount of the value of the work, although it becomes due on completion, cannot be recovered until a certificate has been given. The question of the finality of a certificate when the contract contains an arbitration clause was discussed in Robins *v.* Goddard, 1905, 1 K.B., 294. In that case the contract provided for payment of the contractor under certificates issued by the architect, but it was further declared that "no certificate shall be considered conclusive evidence as to the sufficiency of any work or materials to which it relates, nor shall it relieve the contractor from his liability to make good all defects as provided by this contract." It was further provided that in case any dispute or difference should arise (with certain specified exceptions) it should be referred to arbitration, and the arbitrator should have power to open up, review, and revise (inter alia) any certificate. In an action by the contractor against the building owner to recover sums due on certificates issued by the architect, the defendant set up by way of defence and counter-claim that the work done and materials supplied were defective and unsuitable, and not in accordance with the terms of the contract. It was held by the Court of Appeal that the defendant was entitled to set up this defence and counterclaim on the ground that the arbitration clause destroyed the finality of the certificates.

Municipal Engineering.—Perhaps there is no branch of engineering practice which is so closely bound up with the law as that of municipal engineering. The municipal engineer is charged with the administration of a large number of complex Acts of Parliament, and he must be possessed of a sound knowledge of the general principles of the law and practice of local government. On this matter the author can speak from his own experience, and this must be his excuse for dealing with this branch of engineering first and at some length.

Sewerage and Drainage.—Consider, in the first place, the work of the municipal engineer in connection with the sewerage and drainage of his district. The preliminary question of what is the meaning of the terms "sewer" and "drain" (which it is not proposed to discuss at length in this paper) has demanded the attention of the House of Lords—and many have thought that even they have not solved the puzzle—yet municipal engineers are frequently called upon to decide specific cases in the ordinary course of their daily work. The case considered by the House of Lords, to which reference has just been made, was Wood Green Urban District Council *v.* Joseph, 1908, A.C., 419. In that case a pipe running across the back gardens of several houses took the drainage of those houses into a public sewer. The houses drained into that pipe in pairs, each pair draining into it by a system of pipes shaped like a Y. Three of these pairs belonged to one owner, and the others to different owners. The stems of the Y's receiving the drainage of two houses, belonging to one owner, were admitted to be sewers. The question was as to whether the pipe running across the back gardens was a "single private drain." Two points arose for discussion: first, as to whether the houses were "connected with a public sewer" by the pipe in question, as required by Section 19 of the Public Health Acts Amendment Act, 1891, inasmuch as their drainage passed through an admitted public sewer (the stem of the Y) before entering the pipe in question; and second, as to whether the pipe in question was a "single private drain." On the first point a majority of the House were of opinion that the intervention of an admitted sewer between the alleged single private drain and the houses served by it does not prevent those houses from being "connected with a public sewer" by such drain within the meaning of Section 19. In other words, there can be a "single private drain" between two public sewers. With regard to the second point, the judgment of the House is very difficult to understand, and is based on considerations which have not been dealt with in any of the earlier cases. The pipe in question was held to be a "sewer" and not a "single private drain," on the ground that Section 19 applies only to conduits which (in the words of Lord Atkinson) "Sections 23 and 25 (of the Act of 1875) required the owners to provide or see were provided." Now Section 23 empowers a local authority to require the owner or occupier of a house which is not sufficiently or effectually drained to make a covered drain emptying into a sewer, or, if there is not a sewer within 100 feet, into a cesspool; and Section 25 requires a similar drain to be provided in the case of newly built houses, or houses which are rebuilt. It would therefore appear to follow, as a necessary result of this decision, that the local authority must show that a pipe was a conduit which Sections 23 and 25 of the Act of 1875 required the owners to provide or see was provided, in order to establish that it is a "single private drain," even if it takes the drainage of houses belonging to different owners.

With regard to the power to carry a sewer into, through, or under any lands whatsoever within the district of a local authority, conferred by Section 16 of the Public Health Act, 1875, it should be noticed that this can only be done "if, on the report of the surveyor, it appears necessary." These words received careful consideration in the case of Lewis *v.* Weston-super-Mare Local Board, 1888, 40 Ch.D., 55. It was there held that "the surveyor" referred to in Section 16 means a person duly appointed to be surveyor to the authority under Section 189 of the Act; and further, that the word "necessary" must be construed as meaning "necessary for the efficient discharge of the duty imposed by Section 15 in the way most for the benefit of the public." Also, the person to determine the necessity is the surveyor; and if he exercises his judgment and comes to a conclusion in good faith, the Court will not interfere, even although other courses are shown to be practicable by which the entry on private lands may be avoided. The section further requires that reasonable notice in writing shall be given to the owner or occupier before proceeding to carry a sewer into, through, or under private land. Where a sewer is laid pursuant to the powers given by this section, compensation in respect of the damage caused must be paid by the

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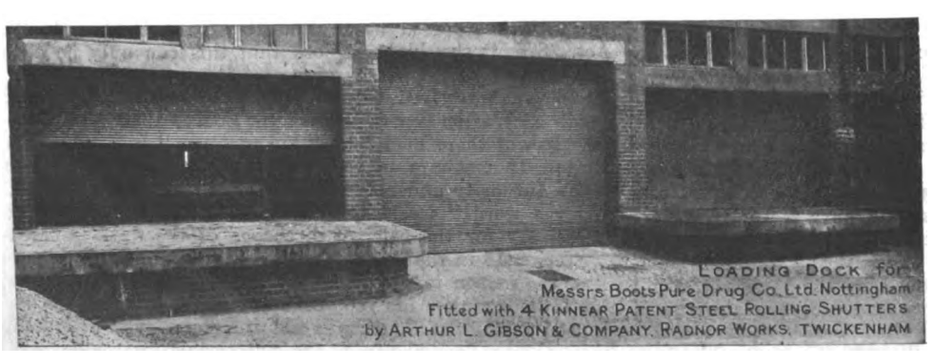
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local authority under Section 308 of the Act. A local authority are not empowered by the section to execute works which will be a nuisance, and will be restrained by injunction from doing so (Lamacraft *v.* St. Thomas Rural Sanitary Authority, 1880, 42 L.T., 365).

Highways.—Another branch of municipal engineering work where the domains of the engineer and lawyer overlap is that relating to highways; and here it may be noted that the changing traffic conditions of recent years have not only produced many engineering problems, but have also resulted in the raising of a number of novel legal points. Before mentioning some of the actual cases that have arisen, however, it may not be amiss to say a few words as to the general law relating to the liability to repair highways. It does not follow that, because a road is dedicated to the public and becomes a highway, the highway authority are liable for its repair and maintenance. Prior to the passing of the Highway Act, 1835, no distinct act of adoption was necessary in order to make a parish liable to repair a public road; if the road was public, the parish was at common law prima facie bound to repair it (R. *v.* Inhabitants of Leake, 1833, 5 B. and Ad., 469). Since 1835, however, some formal act of adoption has been required before a highway authority becomes liable for the repair of a new highway. This formal adoption may now take place in either of three ways—viz., (*a*) the formalities prescribed by Section 23 of the Highway Act, 1835, may be observed; (*b*) a highway may be adopted by notice declaring it to be a highway repairable by the inhabitants at large, under Section 152 of the Public Health Act, 1875, or Section 41 of the Public Health Acts Amendment Act, 1890 (in districts in which that section is in force; (*c*) a highway may be adopted by notice under Section 19 of the Private Street Works Act, 1892, in districts in which that Act is in force. In the case of a highway dedicated since 1835 there is no liability on the part of the highway authority to repair unless one of these three courses of procedure has been followed (Eyre *v.* New Forest Highway Board, 1892, 56 J.P., 517).

Some cases may now be mentioned dealing with the liability of a local authority for damage caused by the manner of repair—e.g., by the use of tar—which are of peculiar interest at the present time. The leading case is West *v.* the Bristol Tramways Company, 1908, 2 K.B., 14, where the plaintiff, a market gardener, successfully claimed damages for injury to plants and flowers caused by the fumes emanating from creosoted wood paving. The case was decided on the ground that the defendants had no statutory authority to use creosoted wood, but that their only statutory obligation was to pave, and a material which would not have caused damage might have been used. In these circumstances, having elected to use creosoted wood, they did so at their peril, and consequently were held liable for the damage caused. The principle of this case has since been applied in a case against the Kent County Council (decided in the County Court), where a cow was killed through drinking water which had been polluted by tar washed from road surfaces. In this case, as in the Bristol case, it was held that the treatment of the road with tar was not the only method available, and was not, therefore, absolutely necessary. Before leaving this part of the subject, two other cases are worthy of attention. The first of these was tried in the Swansea County Court and damages were recovered against the Glamorganshire County Council, who had omitted to warn the public of extensive tar-spreading operations which were in progress. In the other case, which arose in Ireland, a cyclist recovered damages against an urban district council for injuries received owing to the slipperiness of a highway which had not been sanded after tarring. In this case, however, the jury found negligence against the Council.

Private Street Improvement Works.—Another branch of municipal engineering practice which is full of pitfalls for the unwary is that concerned with the execution of works of private street improvement. The comparative advantages of working under Section 150 of the Public Health Act, 1875, and the alternative code provided by the Private Street Works Act, 1892, in itself provides plenty of scope for discussion. But in selecting a topic for discussion in the limited space now at the author's disposal, none appears to be more fruitful than the preparation of the apportionment. The question sometimes arises as to whether, in case of error in or invalidity of an apportionment, the surveyor has jurisdiction to make a second apportionment. The general rule to be evolved from the cases is that when the first apportionment is for any reason a nullity—as, for example, in Elsdon *v.* Hampstead Borough Council, 1905, 2 Ch., 633, where an owner was erroneously omitted—the surveyor is not *functus officio*, and a second apportionment can be made. Under Section 150 of the Public Health Act, 1875, if there is any dispute as to the proportion of expenses to be borne in respect of any premises, the matter is to be determined by arbitration. The apportionment, however, is binding and conclusive on an owner, unless within three months from the service of the notice on him by the local authority or their surveyor of the amount settled by the surveyor to be due from such owner, he shall, by written notice, dispute the same (Section 257 of the Act of 1875). The jurisdiction of the arbitrator is confined to the ascertainment of the proportion of expenses to be paid by a defaulting owner. He cannot inquire into the necessity for the works or the reasonableness of the expenses.

Gas Engineering.—Turning now from municipal engineering to other branches of engineering practice, it will be seen that the lawyer and the engineer have still much in common. For example, parliamentary authority for the supply of gas must be obtained either by special Act or by a provisional order, which is afterwards confirmed by a public Act. Whichever course may be adopted, and whether the supply is to be by a company or by a local authority, the engineer must be familiar with the procedure and practice of the committee-room. "Parliamentary authority having been obtained" (the author is now quoting from the Introduction to Michael and Will's well-known work on "The Law Relating to Gas and Water"), "certain consequences follow; the company obtain power to construct their works, and if need be to take land compulsorily; they have certain limits assigned to them; they obtain power to break up the public streets for laying and repairing mains and pipes. They obtain power to charge a maximum or standard price, and are given summary remedies for recovering that price by cutting off the supply, by warrant of distress, as well as by action in any court of competent jurisdiction. On the other hand, the company come under many obligations and restrictions; they are restricted to definite lands for the manufacture and storage of gas; they may be compelled by consumers to afford them a supply of gas; and such gas must be of the prescribed illuminating power, pressure, and purity." Here is a wide field for discussion, and a glance at the field of water engineering shows that there an even greater community of interest exists between law and engineering practice.

Water Engineering.—Take, for example, the difficult questions that arise in connection with subterranean water. The leading case on this subject is Chasemore *v.* Richards, 1859, 7 H.L.C., 349, in which the appellant, a millowner upon the river Wandle, had for upwards of sixty years enjoyed the use of the water in the river for the purpose of working his mill. The river was, and always had been, fed and supplied above the mill of the appellant by (among other sources of supply) the rainfall upon a district of many thousand acres in extent, which, either by streams or by percolating through the strata, found its way into the river. The local Board of Health for the town of Croydon dug a well upon their own ground, within the above district, and by constantly pumping, abstracted large quantities of water, which would otherwise have found its way underground to, and have been applicable and serviceable to, the mill of the appellant. The natural effect of such constant pumping would be the sensible diminution of the water supply of springs and streams in the vicinity. The question was whether the appellant could maintain an action for the interception of the underground water; and it was held that such an action was not maintainable. It must be remembered, however, that such water as an owner does in fact receive through underground undefined channels, he is entitled to receive in its natural state of purity; so that it has been held that the owner of a well is entitled to an injunction to restrain its pollution by his neighbour's cesspool (Womersley *v.* Church, 17 L.T.N.S., 190).

Electrical Engineering.—The necessary limits upon the length of a paper of this character render it impossible to do more than indicate some of the more important topics, each of which might form the basis of future discussion. Similar examples may be found in connection with electrical engineering. Thus, in connection with electric-lighting undertakings—as in the case of gas and waterworks—questions of procedure and also points relating to the breaking up of streets arise; while in connection with tramways and light railways further questions at once suggest themselves. As an illustration the recent case of the Charing Cross, West End, and City Electricity Supply Company *v.* the London Hydraulic Power Company, 1913, 3 K.B., 442,

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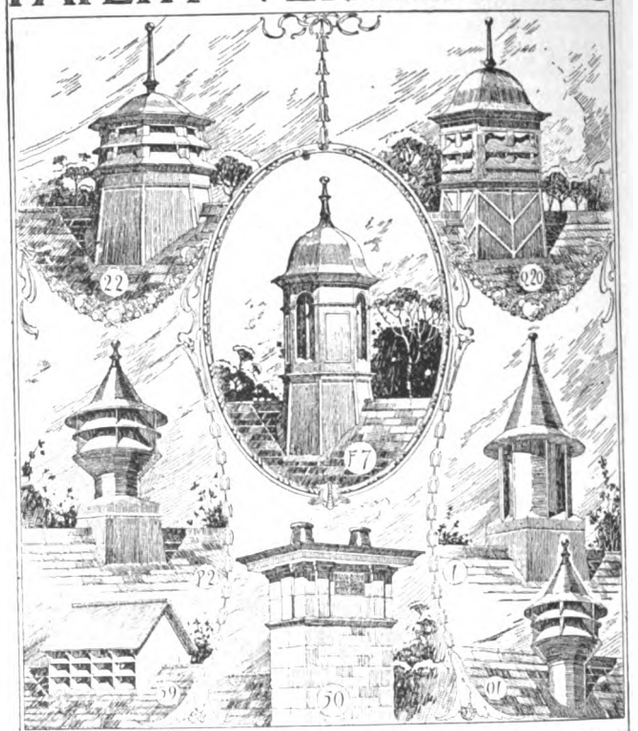
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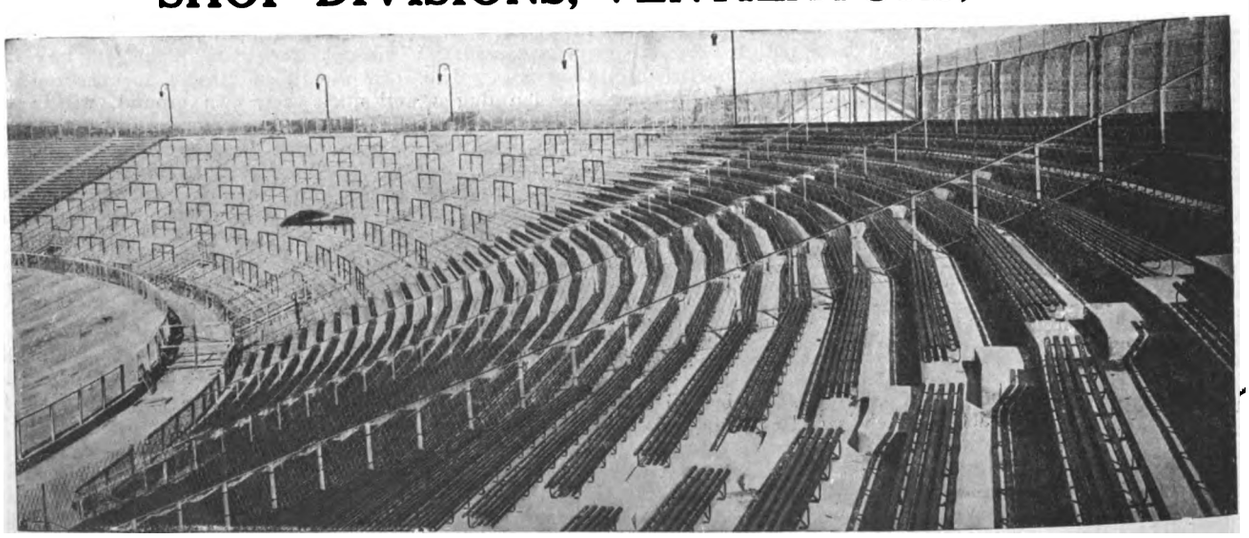


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may be referred to. This was an action brought by the plaintiffs to recover damages for injury to their cables in four different streets caused in each case by the bursting of the defendants' mains. The bursting of the mains was not due to any negligence on the part of the defendants, and the question for decision was whether they were under any liability as for nuisance. Two of the mains were laid under a private Act which was silent as to liability for nuisance, but the other two had been laid under a later Act which contained a clause to the effect that nothing in the Act should exempt the company from liability for nuisance. The later Act further provided that the two Acts should be "read and construed together as one Act." It was held that the defendants were liable as for nuisance in the case of the two mains laid under the later Act; and further that the effect of the two Acts being read together was to take away any privilege of the defendants under the earlier Act, and that consequently they were also liable as for nuisance in the case of the two mains laid under that Act.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Temples of Stonehenge and Magh Slecht.

SIR,—Although the ancient temple of Stonehenge (forming part of the Amesbury Estate belonging to the late Sir E. Antrobus) has been disposed of for £6,000 at public auction, antiquaries will be pleased to know it is scheduled under the Ancient Monuments Act, and the new owner is merely its custodian for the nation. Fortunately its exact position is definitely defined, and beyond all question as the stones are in situ, unlike that of the Hiberno-Keltic ancient temple of Crom Cruach, surrounded by twelve sub idols situate at Magh Slecht (which was destroyed by St. Patrick), anent which much controversy has taken place. But this is now conclusively ascertained to be situate in the level plain of Ballymagauran, in the parish of Templeport, barony of Tullyhaw, Co. Cavan, anciently the patrimony of the MacGaurans or McGoverns (see "Onamasticon Gaedelicum Locorum et Tribuum Hiberniae et Scotiae; an index with identification to the Gaelic names of Places and Tribes," by the Rev. Edmund Hogan, p. 530, 1910, a work of great erudition and invaluable to the historical student.—Yours, &c., JOSEPH HENRY MCGOVERN, Licentiate R.I.B.A.

Liverpool: September 29, 1915.

Land "Patterns" in Art.

SIR,—May I say that in tracing the design of pyramid to "land-form" (see "The Architect" August 20 and 27), it was not to explain away any theories of Divine interference: indeed, Scripture abounds in pattern and type, and commands observance of such in Exod. xxv. 40, Heb. viii. 5.—Yours, &c., S. JAMES.

Willows Park, Victoria, B.C.: September 14, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

High Wycombe.—Workhouse: improvements.

CHESHIRE.

Altrincham.—St. Vincent's R.C. School: extensions.

CORNWALL.

Launceston.—Proposed isolation hospital.

DURHAM.

Hetton.—House, Station Road: additions, for Mr. G. Bambrough.

House, Shaw's Row: rebuilding, for Mr. R. S. Magee.

House, Seymour Terrace, for Mr. Watson.

Houghton-le-Spring.—Property, Rainton Gate: additions and alterations, for Mr. F. W. Goodyear.

ESSEX.

Barking.—Electricity Works: extension. Council surveyor.

Chelmsford.—Pair of houses, Rothesay Avenue. Mr. W. Fincham, builder, Baddow Road.

House and shop, New Street, for Mr. H. Buckee.

HAMPSHIRE.

Portsmouth.—Proposed Council school, Gladys Avenue.

LANCASHIRE.

Bispham.—Shops, &c., Queen's Drive and Red Bank Road, for Mr. J. R. Pilkington.

Irlam.—Picture theatre, Liverpool Road, for Messrs. R. H. Taylor.

Nelson.—Bungalow, Barnoldswick Road, Barrowford, for Mr. Gooding.

Upholland.—Carmelite Convent, Roby Mill Road.

LEICESTERSHIRE.

Stonesby.—House, for Mr. Shaw.

LINCOLNSHIRE.

Skegness.—House and garage, Westfield Road, for Mr. F. E. Hopewell.

MIDDLESEX.

Heston.—House, Sutton Lane. Mr. A. Alban H. Scott, architect, Park Dene, Hounslow.

MONMOUTHSHIRE.

Blaenavon.—St. Paul's Mission Hall. Mr. G. A. Treharne, architect, Belmont, Aberdare.

NOTTINGHAMSHIRE.

Blidworth.—Council school, Rainworth.

Nottingham.—Isolation hospital: addition. Mr. A. Dale, architect, Guildhall.

Retford.—Picture theatre, Carolgate. Mr. T. Parkinson, architect.

OXFORDSHIRE.

Henley-on-Thames.—Workhouse: additions. Mr. J. R. Greenaway (of Reading), architect.

STAFFORDSHIRE.

Tamworth.—Working Men's Club, Bolebridge Street: additions.

Mill premises: additions, for Bolehall Mill Company.

SURREY.

Epsom.—Pair of houses, Chase Road, for Messrs. Roll Brothers.

WARWICKSHIRE.

Coventry.—Factory, Quinton Road, for Mr. W. Iliffe.

Smithfield Inn, Hales Street: additions, for Messrs. Phillips & Marriott, Ltd.

Laundry, George Street: additions, for the Eagle Model Laundry Company.

WORCESTERSHIRE.

Kidderminster.—Two houses, Chester Road, for Mrs. J. Howard.

Langley.—St. John's Mission Church, Darby Road, Rood End (£1,900).

YORKSHIRE.

Askern.—Baptist Church.

Bentley.—Baptist Chapel (for 350 sittings).

Bingley.—Bakehouse, Foster Street, Crossflats, for Mr. E. Smith.

Bungalow, Lees Moor, for Mr. A. Bailey.

House, Cottingley Manor Estate, for Mr. A. H. Briggs.

Castleford.—The "Gardeners' Arms" p.h., Church Street: alterations, for the Leeds and Wakefield Brewery Company, Ltd.

Halifax.—High Road Well Works: garage, &c. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers.

Luddenden Foot.—Fairlea Mill: additions and alterations. Messrs. Sutcliffe & Sutcliffe, architects, New Road, Hebden Bridge.

WALES.

Cilrhedyn.—Farmhouse, Blaensylgen, for Mr. Davies (of Penrhiwilan).

Criccieth.—House, for Mr. Higham, M.P.

Deganwy.—Men's convalescent home. Mr. H. H. Brown, F.R.I.B.A., architect, 20 Brazennose Street, Manchester.

SCOTLAND.

Dundee.—House, Perth Road: additions, for Dundee Combination P.C.

Edinburgh.—No. 77 South Bridge: reconstruction, for Mr. Paterson Smith.

Elgin.—Motor garage,, No. 3 Greyfriars Street. Mr. J. Wittet, architect, 81 High Street.

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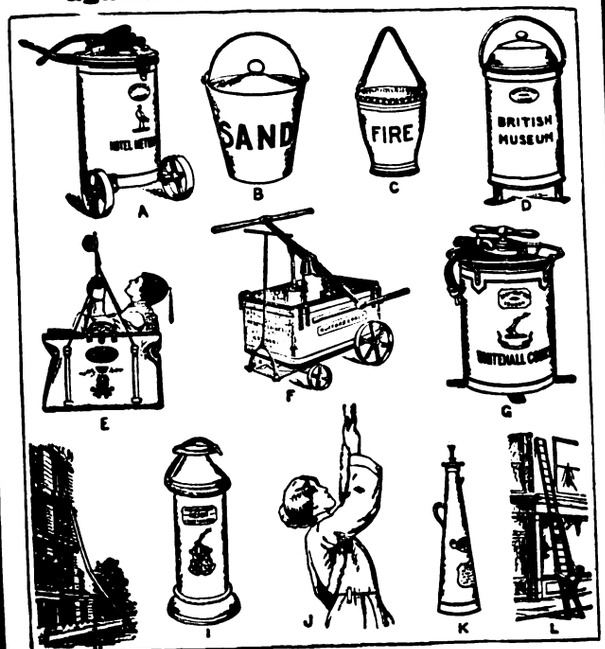
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, October 18.

University Extension Lecture III. on Renaissance Architecture at Victoria and Albert Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Thursday, October 21.

University Extension Lecture IV. on Ancient Architecture at the British Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Friday, October 23.

Royal Sanitary Institute : Provincial Sessional Meeting at Salisbury (two days).

MEASUREMENT OF LIGHT.

THE continued progress that has been and is being made in the improvement of illumination methods necessarily demands for their relative comparison the use of accurate means of measurement, and therefore there has arisen a development of the scientific estimation of light or photometry. The object of light, whether artificial or utilised daylight, being to enable the eye to see things, it is natural that the eye should be part of the apparatus used in measurement. It has been suggested, and not only suggested, but by some the suggestion has been carried out in practice, that the comparison of relative value of light, under differing circumstances, might be made by the ability of the eye alone to recognise revelation of detail under those circumstances, as, for example, by the ability to read a certain size of print or to distinguish between certain specified tints or tones of colour. But such methods are devoid of all reliability by the varying capability not only of the eyes of different observers, but even of the same observer. We cannot always see with the same distinctness under varying conditions. The general state of one's physical health, the fatigue or freshness of one's eyes, have an exceedingly considerable effect upon what we can see at any particular moment. Individuals differ from each other in the extent to which they are affected by light rays of different colour and of different intensity, and even in the same individual it is more than probable that such difference may exist at different times. Accurate measurement of light absolutely necessitates the use of some standard source of constant intensity to which all other sources of light can be referred, and of some appliance assisting the eye to perceive the exact point at which equality of brightness occurs. An instrument which enables this to be done is termed a photometer.

The standard source of constant intensity is expressed in Great Britain, France, and the United States as a "candle" from the intensity of the standard candle which was used in the testing of gas in the early legislation regulating its supply. Into the question of the standard lamps which are used in various countries to calibrate the unit "candle" we need not now enter.

In devising an appliance or photometer to assist the eye in determining equality of brightness two fundamental laws of light distribution must be considered. First, the inverse square law—that the amount of light striking a surface is conversely proportional to the square of its distance from the source; second, the cosine law—that the amount of light received by a surface is proportional to the cosine of the angle at which the surface is inclined to the normal, *i.e.* the angle of incidence of the light from the source. It is important to remember in interpreting the cosine law that the brightness of an illuminated surface will also depend upon its nature, and on whether it is of a matt or glossy texture. The inverse square law is subject to modification in the case of sources which, like the search-light, concentrate their emitted rays.

The application of the inverse square law has led to the adoption of the expression "foot-candle" as the unit of the light received by a surface from a source which, analogous to a moment in statics, may be defined as the unit of measurement of the effectiveness of a light-source of given intensity at a given distance. On the Continent the unit is more usually the metre-candle or "lux."

It follows from the co-operation of the inverse square law and the cosine law that the amount of light received by a surface from a given source is per unit of area dependent upon the intensity of the source, its distance from the surface, and the angle of incidence, which may be expressed algebraically by the formula

$$E = \frac{I}{r^2} \cos \theta$$

foot-candles, where E is the quantity of light striking the surface per unit area, I the intensity of the source in candles, r its distance in feet, and θ the angle of incidence. In the measurement of the total flux of light received by a surface it is usual to make use of the unit termed a "lumen," which is the flux of light received by an area of one square foot illuminated with an intensity of one foot-candle.

As the intensity of light-sources in general varies considerably in different directions it is necessary for their accurate comparison to take into account the light in all directions, which is done by the estimation of their "mean spherical candle-power." This may be defined as the candle-power which a source would possess if it gave out the same total flux of light as at present, but evenly in all directions. The "intrinsic brilliancy" of surfaces which actually generate light is usually expressed in candles per square inch rather than foot-candles, on account of the size of the numbers involved.

A fascinating path of investigation in the measurement of light has attracted not a few—the idea of using so-called physical methods, *i.e.* the direct action of light on some material, independent of the eye. Even with the best modern photometers the eye has its limitations, both in accuracy and in range of observation, and hence a photometric method that would be independent would be valuable if feasible. Unfortunately, none of the chemical or physical methods up to the present employed respond to radiant energy in exactly the same manner as the eye, and hence as means of measurement of the capability of light to enable the eye to see things fail in useful results. The thermopile would be mainly influenced by the heat rays of an illuminant, actinometers and photographic paper are in general affected most by ultra-violet rays. It is possible that further experiments with selenium cells and alkali metal cells may in the future give us a photometer independent of the eye, but having a curve of sensitiveness substantially the same as that of the normal eye, but this desideratum has not yet arrived.

For the purpose of comparison of the utility of lamps as sources of illumination it is necessary to be able to measure not only their intrinsic brilliancy or candle-power, but also their distribution of the light they emit. When unprovided with a globe or reflector the arc lamp with vertical carbons gives its maximum light at an angle of about 50 degrees in the lower hemisphere, but very little light immediately under the lamp and a small intensity in a horizontal direction. An upright gas-mantle has its maximum intensity horizontally, and throws a deep shadow below the burner, whilst inverted mantles, being approximately spherical in shape, give practically their maximum light in every direction in the lower hemi-

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sphere. The operation of any particular lamp, shade, or reflector in distributing the light from its source is usually expressed diagrammatically by a "polar curve of light distribution." From this curve is usually calculated the mean spherical candle-power of a light-source to which we have already referred. Apparatus has, however, been devised for determining directly the mean spherical candle-power of a light-source.

In daylight photometry special arrangements have to be made for dealing with the much higher values of illumination to be tested and their extreme variability. Daylight varies not only with the time of day and the season of the year, but is also affected by the climatic conditions, an enormous difference existing between the light on a bright, sunny day and on a dull, cloudy one. The problem of daylight photometry becomes exceedingly difficult on days when the sun is shining, but is temporarily obscured by passing clouds.

Although it cannot yet be said that photometers have reached perfection, great progress has been made in their design and effectiveness, and we would commend to our readers who desire to know what has been accomplished in this direction the excellent description of the principal varieties of both early and modern photometers given in the handbook on Modern Illuminants by Messrs. Gaster & Dow.*

NOTES AND COMMENTS.

Those of our readers who have made a serious study of fire prevention, whether as members of the British Fire Prevention Committee or as readers of its publications, will fully endorse the advice to the public given by the Commissioner of Police of the Metropolis in the following police warning:—

In view of the possibility of further attacks by hostile aircraft, the Commissioner of Police deems it advisable to call attention to the public warning published on the 28th June, recommending residents to remain under cover and advising them, for dealing with incendiary fires, to keep a supply of water and sand readily available. The opportunity was taken of suggesting that chemical liquid fire extinguishers should not be purchased without a written guarantee that they comply with the specification of the Board of Trade, Office of Works, Metropolitan Police, or some approved Fire Prevention Committee.

Many dry-powder fire extinguishers are much advertised. The Commissioner warns the public, as the result of experiments made, at his instance, by a competent committee of experts, that no reliance can be placed upon such appliances for effectively controlling fires such as are likely to be caused by bombs, explosive or incendiary. The Commissioner is advised as the result of these experiments that the provision and prompt and intelligent use of water, or of sand, or of both, in dealing with such outbreaks of fire is the best, simplest and most economical safeguard.

It is one of the doctrines of the modern school of town planners that the town site should be divided definitely into specified zones, this for dwellings, that for factories, and so on. That inconveniencies may thereby arise is probable, and the view taken to-day of the best locality for each class of building is not at all unlikely to be totally opposed to the view of to-morrow. In the history of all large towns we find over and over again that the fashionable residential quarter of one generation becomes the slum of the next and the factory district of a successor. An instance of very early differentiation appears to have occurred in the case of Rosyth. One of the petitions recently presented at Dunfermline Dean of Guild Court was for an addition to the Scottish Central Rubber Works. The Burgh Engineer pointed out that, while he had no fault to find with the plans, the building was to be erected on an area which had been scheduled under the Rosyth town-planning scheme for dwelling-houses. The Legal Assessor said that while the Town Council would offer no objections, and Lord Elgin, the superior, approved, he could not guarantee the attitude which the Local Government Board might take up. Mr. James Currie Macbeth, who represented the petitioners, R. W. Stewart & Co., said that the lack of elasticity in the scheme might possibly result in great prejudice being done to the burgh and to the proprietors of land in the future. Factories and workshops could not be built on areas scheduled for dwelling-houses, nor could dwelling-houses be erected on land set apart for factories, no matter how the local conditions might alter. He thought the present petition was a concrete example of the need for more elasticity in connection with the scheme. The Legal Assessor pointed out that the obvious answer to Mr. Macbeth was that his position now showed a very great lack of consideration on his part of his clients' interest in not making a representation to secure for his clients ground for an extension of their present works. Dean of Guild Irvine said that the Town Planning Committee might have exercised a little more prudence in order to give room for public works extending, and he did not think that the site of the proposed works was the most suitable place for dwelling houses. The Court passed the plans.

The City Council of Liverpool has set a good example that should be widely followed in forbearing even to incur the present expense of a few hundred pounds to obtain a provisional order for power at some future time to raise about three-quarters of a million for the construction of a third pipe-line to the city from Vyrnwy reservoir.

In a letter to the "Manchester Guardian" announcing the institution of a new lectureship at the School of Technology, the principal of the School enunciates some important truths. He says:—

It is not more difficult or more costly to produce a beautiful than an ugly fabric. The difficulty experienced by manufacturers and merchants is rather to obtain designers or buyers who will produce or purchase only those designs that will be generally recognised as beautiful. Fortunately, this difficulty is not insuperable, for competent designers and buyers can be developed by suitable training, even though beauty can never be standardised.

The war has now added to the burdens of those manufacturers who use colour in the production of ornament. The impossibility of obtaining suitable dyestuffs has compelled many firms to modify their ranges of patterns, and others have been obliged, by the new limitations, to discard or alter some of their designs.

The restriction of intercourse with the Continent has also hampered houses who relied for novelties upon the samples of fabrics collected and distributed by Continental firms.

The demand which results from all these causes for a larger number of efficient designers is further intensified by the urgent calls upon manufacturers to produce in this country ornamental fabrics which shall take the place of those formerly made abroad. Moreover, it is certain that this demand will not be merely temporary; for many of the new textiles the manufacture of which has been introduced since the war began have evidently come to stay.

The housing problem in Dublin is felt to be so acute that the Corporation has resolved on spending £8,000 a year out of income in building on the Ormond Market site. They are driven to this course by the absolute impossibility of borrowing even at 6 per cent.

A recent fire in Manchester in which a man lost his life by jumping through a window has called attention to the fact that some employers of labour in the city are

* "Modern Illuminants and Illuminating Engineering." By Leon Gaster and J. S. Dow. With 204 illustrations. (London: Whittaker & Co. 12*s.* 6*d.* net.)

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not keeping clear the entrances leading to the fire escapes. The Manchester Sanitary Department have issued warnings to forty or fifty firms in regard to the matter, and have intimated that unless the means of escape in case of fire are kept in proper condition prosecutions will follow.

Ivan Mestrovic, the Serbian sculptor, has been honoured at Leeds University by the applause of a large audience in the great hall of the University on the occasion of a lecture explaining both generally and specifically the art of the master by M. Miranovic, a distinguished Serbian art critic, who, as reported in the "Yorkshire Post," in dealing with the idea of Mestrovic's gigantic creation, the Temple of Kosovo, remarked that the national poetry of Serbia was an admirable spiritual deed, and it was true that whenever the Southern Slavs had rest from their battles they strove for spiritual life. But although the history and life of the Southern Slavs was known to many people, extremely few Europeans, perhaps really none, had grasped the vision of Mestrovic's people. The great warriors of Serbia were admired, the whole of the race began to be loved and highly esteemed, but the grand beauty of the human dream of Jugoslavia, her real life-value for Europe and human civilisation, remained a mystery. The Temple of Mestrovic had both the human and the Divine beauty; it was the embodiment of human glory and an immense, although human, peace. It might be said to be a reconciliation of mankind with eternity. It represented an eternal dawn of beauty and of New Aryandom. It was the visible perfection of panharmony. The building as it was conceived would be, he believed, as to its dimensions, one of the greatest buildings in the world. The pyramids of Egypt, the columns of Memnon, the palaces and temples of Assyria, the mountain-like pagodas of India, the mythical Colossus of Rhodes, were to be in their spiritual and physical greatness re-united in this creation of one nation and through one artist. He would leave unexplained how this was possible, and what was the mystery that made Serbia and Mestrovic the same entity.

The Building Acts Committee of the London County Council have presented the following report:—

On May 18, 1915, we reported that Mr. R. P. Notley had commenced an action in the High Court, in which he claimed a declaration that the resolution of the Council of March 16, 1915, dispensing with his services as district surveyor for Bethnal Green West, as from September 30, 1915, was illegal, and that he was entitled to hold his office notwithstanding the resolution, and also an injunction restraining the Council from enforcing, or in any way acting upon the resolution. The Council on the same date instructed the solicitor to defend the action.

The case was heard by Mr. Justice Rowlatt, without a jury, on July 28, 1915. After hearing the arguments of Mr. Freeman, K.C., on behalf of Mr. Notley, his Lordship gave judgment in favour of the Council with costs without calling upon Mr. Macmorran, K.C., on behalf of the Council. His Lordship held that Mr. Notley had no case in point of law, and that the Council had power to terminate his tenure of office at its pleasure. He stated that the question of the exercise of the Council's discretion was entirely superfluous matter for him to go into, but that it was not to be supposed that the Council did not come to a very wise and proper decision.

The London County Council having become the possessors of a coat-of-arms, naturally desire opportunities for its display, and the General Purposes Committee recommend that the offer of Mr. Cyril S. Cobb, M.V.O., to present to the Council a banner of arms be accepted, and that the banner of arms of the Council be in accordance with the design submitted by the General Purposes Committee on October 12, 1915. In the Committee's report prefacing its recommendation, there appears to be some confusion in the acceptance of Mr. Dorling's advice as to the proportions of a banner and the intention of using the banner as a flag, but we presume that this is merely a matter of phraseology. The report says.—

Mr. Cyril S. Cobb, M.V.O., Chairman of the Council 1913-14, has intimated his desire to present to the Council a banner embodying the Council's coat-of-arms, for the expenses incidental to obtaining which the Council is already indebted to him. Mr. Cobb has consulted the Rev. E. E. Dorling, one of the best authorities in such matters, as to the design of the banner. A detailed drawing, which has been prepared at Mr. Cobb's expense by Mr. Dorling, will be exhibited in the members' lobby when this report is presented.

Mr. Dorling advises that it is in accordance with the best traditions of heraldry for the possessor of a coat-of-arms also to exhibit a banner based in design upon the coat-of-arms. The proportions of a heraldic banner may vary within certain recognised limits, and the design submitted has been prepared having particular regard to the features of the Council's coat-of-arms, which it is necessary to introduce into the banner. Mr. Dorling advises, however, that on no account ought a banner to be of the same proportions as an ordinary flag. Indeed, the Council's arms do not lend themselves to such treatment, since it is obvious that in a rectangle measuring, say, 3 feet by 6 feet, the chief would be approximately 1 foot by 6 feet, and the cross of St. George superimposed in a space of these proportions would present an incongruous appearance, and the leopard with which the cross is charged would be so small as to be almost unrecognisable.

We considered it to be particularly desirable that the Council should possess a distinctive banner, inasmuch as there are many occasions of purely municipal importance—*i.e.* days when a flag is not displayed on Government offices, but is hoisted on the County Hall—when the flying of the national flag on the central office of the Council is inappropriate. As examples of such occasions we may mention such events as the anniversary of the first meeting of the Council, ceremonial occasions when no member of the Royal Family is present, occasions when the Council entertains representatives of foreign municipal authorities. In addition, on the occasion of the death of a former chairman of the Council, when the flag would be flown at half-mast, it would clearly be appropriate for the flag to be that of the Council rather than the Union Jack.

We have accorded to Mr. Cyril Cobb our grateful thanks for his offer.

We are asked to announce that Professor F. M. Simpson, F.R.I.B.A., will deliver a public lecture at University College on "St. Sophia, Constantinople, and the Mosques of Constantinople and Brusa," at 5.30 P.M. on Thursday, October 28. Admission to this lecture will be by ticket, which may be obtained gratis from the Secretary of University College on application, enclosing a stamped addressed envelope.

An important Roman amphitheatre has been discovered near Pozzuoli by Professor Spinazzola, director of the excavations at Pompeii.

Pozzuoli is the ancient Puteoli, founded in 520 B.C. on the bay of Puteoli, a part of the Bay of Naples. Cicero owned a house in the town, and St. Paul landed there in A.D. 61, spending a week there before proceeding to Rome. It was a great commercial port, and, like Ostia, was considered a special port of Rome. Piles of the mole protecting the docks are still visible, and are erroneously known as Caligula's bridge.

The remains of one amphitheatre, built in or after the reign of Vespasian, Emperor of Rome A.D. 69-79, have always been visible containing the subterranean chambers with trap-doors, out of which the wild beasts were set upon their prey. It was known that another amphitheatre had existed there at an earlier time, Nero

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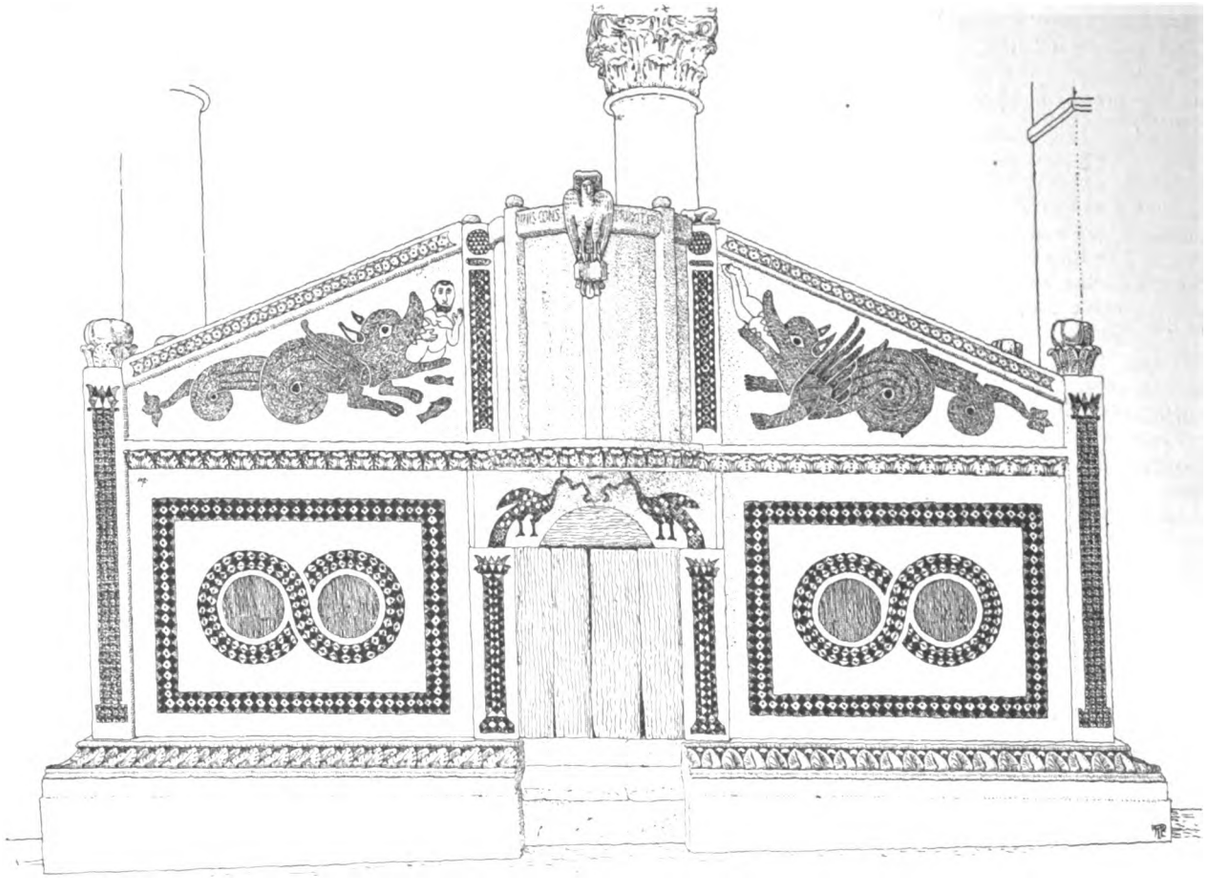


Fig. 1.—EPISTLE AMBONE.—RAVELLO DUOMO.

(Emperor A.D. 54-68) himself having fought in games in its arena. Perhaps this is the amphitheatre now reported to be discovered by Professor Spinazzola.

ILLUSTRATIONS.

HUDDERSFIELD NEW POST OFFICE.

This building stands on a most convenient island site measuring 3,345 square yards. The main front is in Northumberland Street, exactly opposite the old premises, and extends from Byram Street to Lord Street, a distance of 165 feet. It is carried out in Crosland Hill and Elland Edge stone. The public office, which we also illustrate, is reached through a small vestibule, and is both handsome and convenient. At one end a door leads into the public telephone room, with its half a dozen sound-proof cabinets. On this ground floor are also the rooms of the postmaster, the chief clerk, the writing clerks, and the strong room. To the rear of these are the telegraph messengers' room, retiring room, and cloak-room. On the Byram Street side is a lofty one-storeyed apartment 120 feet by 73 feet, forming the sorting office. The main staircase is carried out in concrete, with a finish of carborundum. On the first floor are the telephone-testing room, the battery room, the telegraph room, and retiring accommodation for the male clerks. On the second (and top) floor is the telephone-switch room, 71 feet by 34 feet, which may be approached from the street by a separate staircase, as well as telephone inspector's room, retiring accommodation for the lady clerks, and storerooms. In the basement are rooms for the engineers and linesmen as well, and for the hot-water heating apparatus.

The general contractors were Messrs. Thos. Obank & Sons, Thackley, Bradford. Among the sub-contractors were Messrs. W. H. Heywood, of Huddersfield (steel and glazing); Messrs. Longbottom, of Lockwood (plasterers); Messrs. Fielding & Bottomley, of Halifax (fittings); and Messrs. Sankey, of Warrington (fittings).

The architect was Mr. Chas. P. Wilkinson, of H.M. Office of Works.

THE DOUBLE AMBONES OF SOUTH ITALY.

By the late J. Tavenor Perry.

The ambones of South Italy and Sicily have but little in common, save in their use, with those of Rome, and appear to be modelled on the classic form of the rostra rather than drawing their inspiration, as might have been expected by the history of the country, from the East. They are chiefly to be found in the churches of the Principata, Apulia, and Sicily, and the most important examples are in the cities around the Gulf of Salerno. But it is a remarkable thing that the first ambone erected in this district, or at least the first one remaining perfect, shows a close approximation to the earliest type of Constantinople, and was probably the result of direct Byzantine influence. (Fig. 1.) This is the ambone which now serves for the Epistle in the Duomo of Ravello, removed from its original position, which was possibly the centre of the nave, according to ancient practice when it was first set up, to make room for the very beautiful Gospel ambone erected during the next century. In support of the theory that it once occupied a central position may be mentioned the circumstance that the east and west staircases go in one direction only, without any turn at the bottom towards a schola cantorum as in the Roman examples, and that there was a passage-way under the pulpit. On the other hand the presence of the eagle on one face, which does not appear to be a later insertion, indicates that the Gospel was read from this point (fig. 2).

This ambone was erected in 1130, and before the Pisan raid which did so much damage to Ravello, but subsequent to the time when the double ambone had been introduced into Rome. An inscription round the parapet informs us that it was made for Constantine Rogardeo, who was the second bishop of the see; but it is not improbable that the very rich mosaics with which it is decorated may be at least in part the result of a restoration necessitated by the damage inflicted by the Pisans, and indeed subsequent to its being shifted. These mosaics are very rich in colour, and may be compared to much of the work to be found on the cancelli and staircase walls of the Duomo at Salerno, but those in the spandrels of the ramps are almost unique. They show the story of Jonah and the whale, the fish being represented by a great dragon into whose distended jaws

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the Prophet is descending on the one side, and from which he is being violently expelled on the other.

It should be mentioned here that at Sessa Aurunca, to the north-west of Capua, there are remains of another early ambone treated with the Jonah story, but with variations. This ambone stood, like that of Ravello, on the north side of the nave, and appears to have been of the same type, but its decorations were in sculpture instead of in mosaic; and of the two panels which have been preserved one represents the Prophet preaching at Nineveh, and the other, which formed a ramp of the staircase, shows the whale in the form of a gigantic carp in the act of casting Jonah forth, who is completely out save for one leg, while with the other he has made a start to run away.

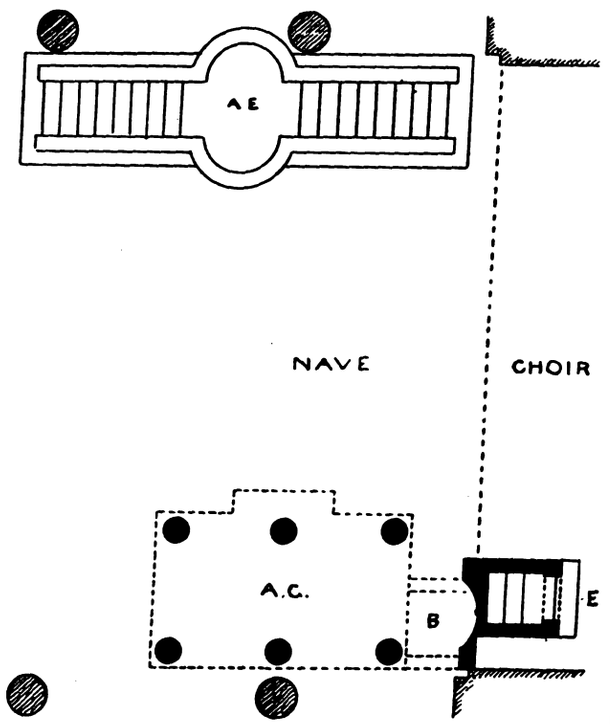


Fig. 2.—SKETCH PLAN OF AMBONES, RAVELLO DUOMO.
A E.—Epistle Ambone. B.—Bridge.
A G.—Gospel Ambone. E.—Entrance doorway and stairs.

There are two great ambones in the nave of Salerno Cathedral which were set up some time before 1181, the date of the death of Archbishop Romualdus II., by whom they were presented to the church according to an inscription to be read on the parapet of the northern one—"Romualdus II. Salernatanus archiepiscopus praecepit fieri hoc opus." We give a plan (fig. 3) showing the relative positions of these ambones. The southern or Gospel ambone (fig. 4) stands on twelve ancient columns of granite, some of which appear never before to have been used, as the deep quarry-worked fillets, left thick to protect them during transit, still remain, while the exquisitely carved marble capitals with birds and figures scattered among their wind-blown acanthus leaves are also ancient, though they did not belong to these columns. The bases with angle spurs are of the date of the ambone's erection, and are partially buried beneath the marble floor, which was raised and relaid in 1872. The parapet walls, the ramps of the staircases, and the curious connecting bridges have the marble formed into a series of panels ornamented with discs of porphyry and interlacing ribbons of glass and marble mosaics, surrounded with a carved leaf decoration, and having the pilasters surmounted with ornamental finials. The marble desk is carried on the outspread wings of an eagle, whose talons are entwined in the hair of an old man engaged in throttling a serpent, with its head on his breast and its body twisting round his legs. This figure, which is somewhat rudely carved in the manner of the later sarcophagi, so many of which are scattered about the church, is habited in a Roman costume, and has been assumed to represent Æsculapius, in allusion to the celebrated medical school of Salerno.

The Epistle ambone on the north side of the nave (fig. 5), although the whole of it is assigned to the period indicated by the inscription on the parapet already quoted, is in some respects of higher artistic excellence than the Gospel ambone, and recalls somewhat in its general appearance the form of the ciboria met with in Apulia.

It stands on four graceful columns of rare black porphyry known as perfido nero bianco, matchless and priceless, and quarried no one knows where. The capitals are beautifully sculptured in the debased Roman manner with little nude figures among the foliage, and over them rise arches with sculpture of a more finished style. The two semi-nude figures at the southern angles, and the Evangelistic symbols and carvings in relief on a mosaic background, seem to belong to a date at least a century later than the one usually assigned to the ambone, and it has been suggested that this part of the work was a subsequent addition, the upper part having been reconstructed and the old parapets replaced. Its greater height than the more important ambone which faces it, and the presence of the iron tie-rods which could only have been placed where they are during construction,

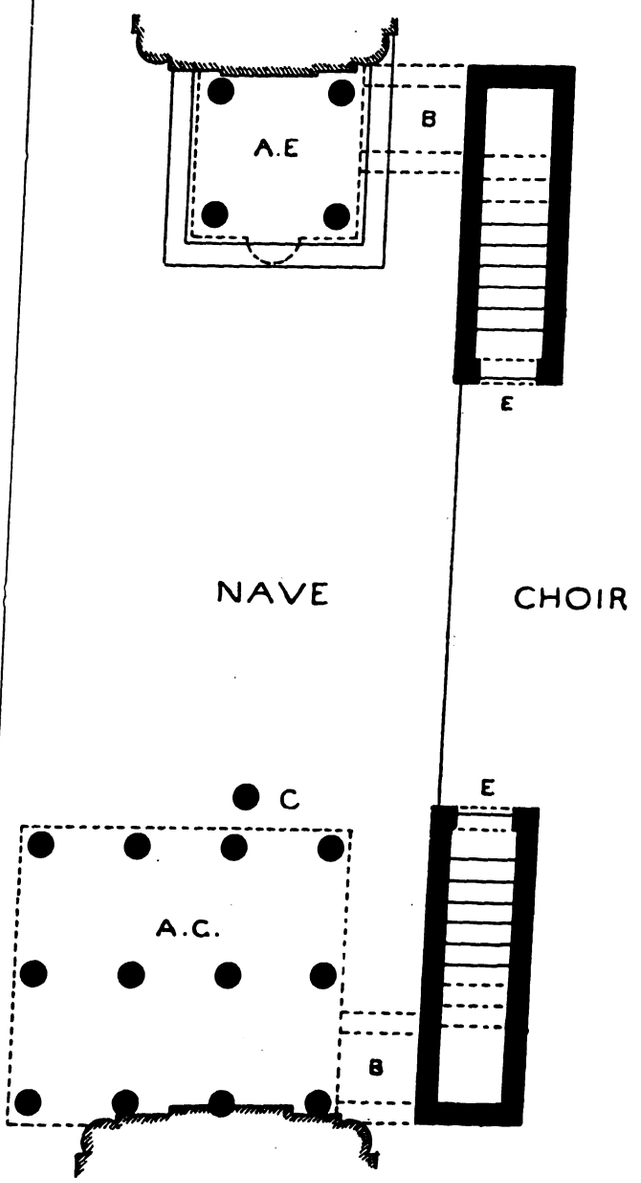


Fig. 3.—SKETCH PLAN OF AMBONES, SALERNO DUOMO.
A E.—Epistle Ambone. B.—Bridge.
A G.—Gospel Ambone. C.—Paschal candlestick.
E.—Entrance doorway and stairs.

make this appear possible, and admit of assigning this beautiful part of the work to some sculptor of the thirteenth century, and perhaps to that same Niccolo da Fogia whose work we shall presently see at Ravello.

There are three novel features in these ambones which in no way arise by evolution from the Roman or other examples of a previous period in Italy, but at the same time are characteristic of the Coptic ambones; and these are the single staircase of approach to the Gospel ambone on the east side, the bridge or balcony connecting it with the pulpit, and the entrance doorway. There can be but little doubt that these innovations point to the same Saracenic influence which

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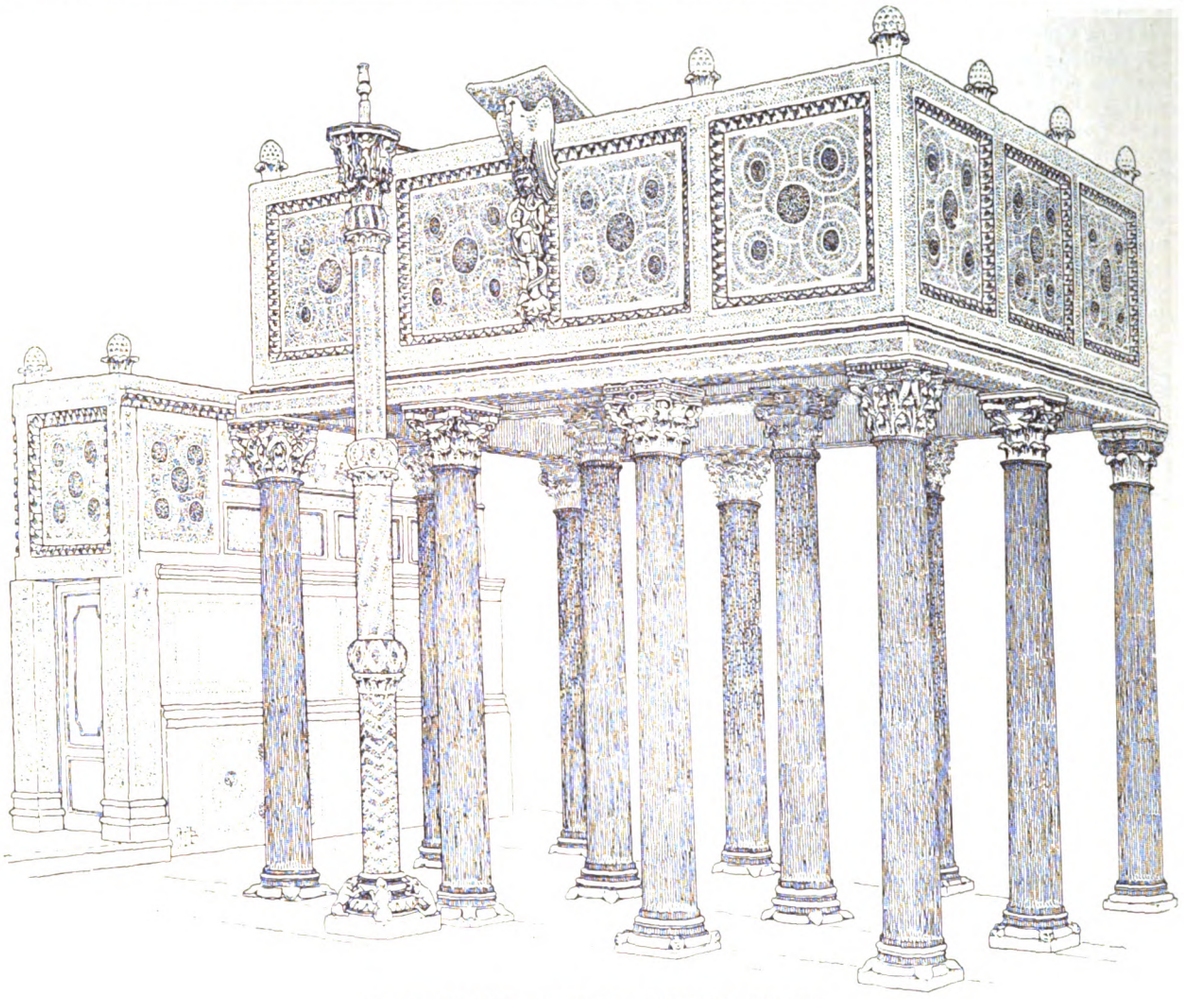


Fig. 4.—GOSPEL AMBONE.—SALERNO DUOMO.

is so clearly perceptible in the mosaics. The conquest of Saracenic Sicily by the Normans was not a century old when the ambones were erected; and the Coptic or Saracenic artists among the mosaicists were doubtless sufficient architects to introduce these features, with which they were so familiar in their own ambones or minbars, as well as their peculiar designs for the mosaic decoration. But from whatever source derived, we have, particularly in the doorway, features unknown in contemporary Italian art while distinctive of that practised in Africa and Syria.

There is a third ambone in Salerno Cathedral, standing within the choir, said to have been erected by John of Procida, the exact purpose of which is unknown, though it has served on occasion for the enthronisation of the archbishops of Salerno. It is much simpler and smaller than either of the other two, and consists of a square pulpit with panelled sides decorated in mosaic and standing on four spirally inlaid columns.

(To be concluded.)

ORGANISATION.*

When we look closely into the causes of Germany's great advance, we can learn lessons which we have been culpably slow to take to heart. Although there are other causes, first and foremost, and overshadowing all others, is the determined and whole-hearted organisation of German industry. I see it recently stated that the scheme above referred to (the Victoria Falls scheme) was lost to this country because the industrial banks of Germany backed their own manufacturers, and this is no doubt partly true. As I have already quoted, Germany's power in war is admitted to be her mechanical organisation, and the organisation of every material and engineering force to that end. Just as striking, if not more so, is her organisation for the arts of peace, and I lately heard a very shrewd man of affairs express his amazement at Germany's entrance into war, when by peacefully pursuing the way she was going she would have dominated the world commercially in a few years' time, and, in the words of the speaker, might in many manufactures have made us practically bankrupt. It is undoubtedly in the matter of scientific organisation even more than the organisation of science that Germany has achieved such wonderful results, and it is therefore in this direction that we must leave no stone unturned if we wish to have any chance of holding our own in the future.

Organisation, I venture to think, is by far the most important question of any I have raised, and I will go so far as to say that I believe it to be the all-important one, as it practically embraces the others. If you do not agree with me, I feel sure it is because we do not understand the same thing by the word "organisation." When you speak of organisation to most people they immediately seize upon some small feature which may be to them of more immediate interest. It may be the general arrangement of their accounts, their system of store-keeping, of dealing with their workmen, of the sales department, or fifty other minor details. If you take this narrow view of organisation you will, of course, at once say that a scientific man has very little to do with it, and indeed the manufacturer as a rule, thinking of his works organisation, scouts the idea that a man of science can either know or have anything to say about it which is of any value.

Let me therefore take the dictionary definition. To organise is to "arrange or constitute interdependent parts, each having a special function, act, office, or relation with respect to the whole." If we accept this definition, which as a matter of fact we must, there is no question as to the all-important nature of organisation, for you will notice there are two outstanding things. The first "interdependent parts"; and the second their "relation to the whole." Thus the subject of organisation really includes the whole of industry. It includes science and its relation to manufacture. It includes the relations between the employers and employee. It includes the workman, and his attitude towards new devices, labour-saving appliances, and output.

* Extract from the address to the Engineering Section of the British Association at Manchester by Mr H. S. Hele-Shaw, D.Sc., LL.D., F.R.S., M.Inst.C.E., President of the Section.

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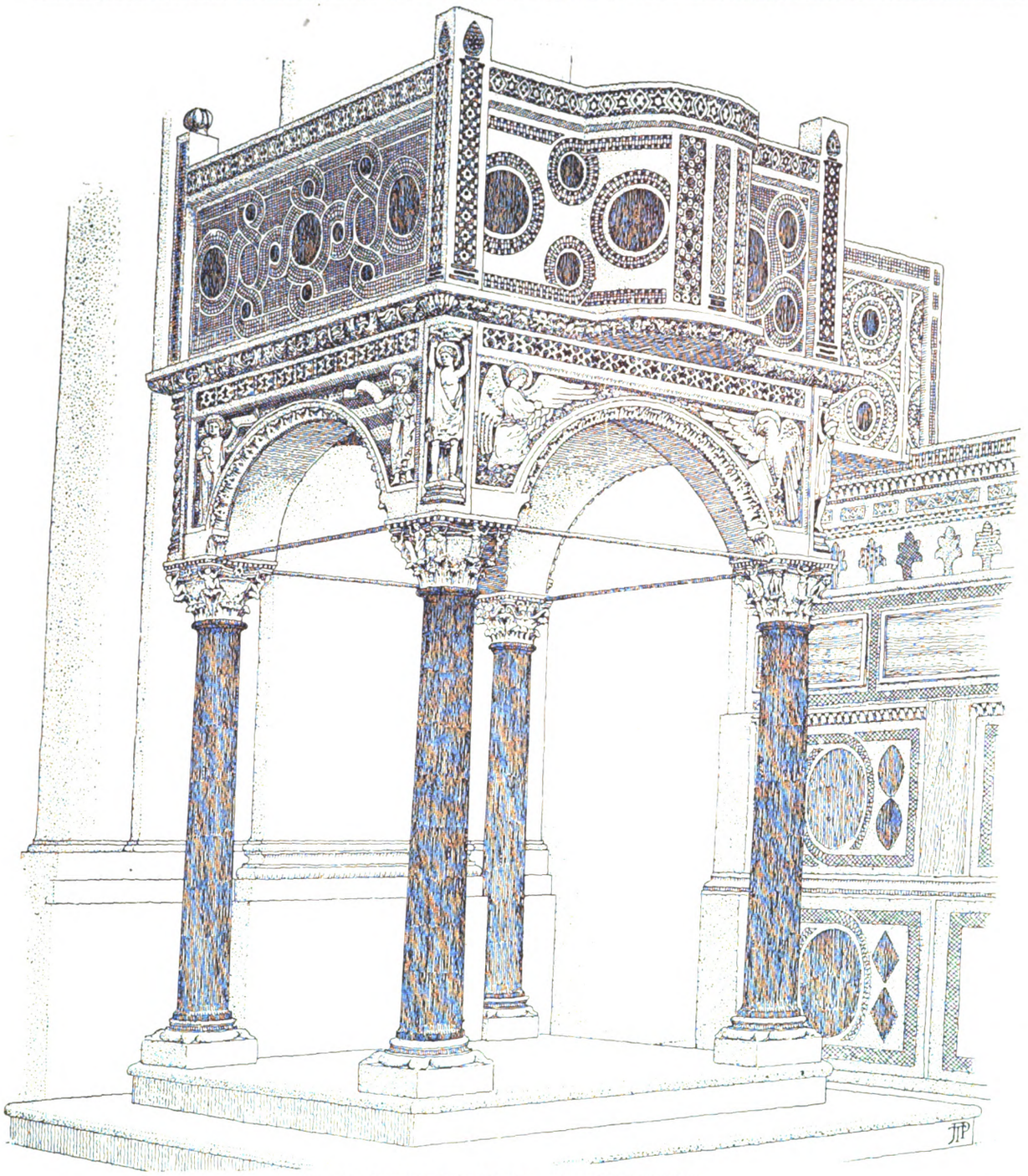


Fig. 5.—EPISTLE AMBONE.—SALERNO DUOMO.

It includes the whole question of the supply of raw materials, and even the sale and delivery of the finished article. Taking these different features, is there any doubt that the man of science in this country can hold his own, and more than hold his own, with that of any other? The history of invention is quite enough to give a final answer to this question. Again, the British employer and man of affairs has always shown himself individually in the forefront of enterprise; as for the workman himself, he is admitted, in the matter of intelligence, physical endurance, and skill, to have no superior; while with regard to materials for manufacture, and the power of delivering goods, it need scarcely be said that the British Empire, if we take it as a whole, is the richest country in the world in raw materials, and its means of delivery of its goods is expressed by the enormous preponderance of its mercantile marine.

When we come, however, to these interdependent parts and their relation to the whole, it is there that we find the weak joint in the armour. It is in this respect that Germany can teach us a striking lesson in the arrangement of these interdependent parts with respect to the whole. From the top to the bottom the whole forces of their industries are so thoroughly organised that they get all that is humanly possible out of the various factors. I do not limit this merely to the wonderful organisation of any works, like Krupps, or the Deutsche Maschinenfabrik, or hundreds of other works, but I include the organisation of all the Government Departments, together with the banks, the railways, and the shipping, so that every facility is afforded for the world commerce of the German Empire.

Taking only one of these details, I remember, when at Liverpool, and the battle of the Manchester Ship Canal was being fought, what facts came out as to the difficulties in the transhipment and handling of goods. The late Mr. Alfred Holt, for instance, was one of the most earnest in pointing out that the want of co-operation and organisation in getting goods from our manufacturing centres was adding largely to their cost, and actually exceeded the cost of transporting these goods across the ocean. In Germany, on the other hand, the Government steps in, and by means of special differential rates, gives the manufacturer every facility, and the lowest possible rates for obtaining raw material, and delivering the finished goods to all parts of

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the world. It was this organisation that not only rendered Germany so formidable a rival in times of peace, but makes her so powerful in war.

This co-ordination in Germany in carried out in every industry in a way we generally have little idea of. For instance, the other day at a deputation to the Government Mr. Runciman remarked that the difficulty of connecting the manufacturers with the commercial staffs in this country is deep seated, but perhaps not altogether incurable. Further, that the manufacturer must realise what he can get from the universities, and the University must know what the works require. Dr. Foster, the Treasurer of the Chemical Society, also said that "the Germans were so imbued with the need of pursuing modern and efficient methods of education, in applying science to industry, that they hold in contempt a country which notoriously neglects such processes"; and he attributed this contempt as partly contributory to their cheerfulness in entering into the war with us.

Now while these remarks are undoubtedly true, they are only a part of the truth. The evil is far wider than in any special application, for, as the German knows perfectly well, there are innumerable individual cases of organisation in this country of equal efficiency to any in his country, and he is glad enough to learn from special cases. Let us take one, and I do so because it shows that the man of science is capable of industrial and manufacturing organisation, if he turns his mind to it. I refer to the case of the firm known as Barr & Stroud, Ltd. As you know, the founders of this firm were originally colleagues in the Yorkshire College (the former, Professor Barr, occupied the Presidential chair of this Section three years ago), and they together invented a range-finder. Now, whatever the merit of this range-finder, it is safe to say, like every other important invention—for instance, the Parsons turbine—that the invention alone would have stood a small chance of coming into practice. In fact, to make the invention is, as a rule, the beginning of the difficulty. Professors Barr and Stroud, however, set to work to carry their invention into practice, and did so with such effect that their works, which began on quite a small scale, rapidly grew, and the first part of the new works was opened with about ninety hands all told in 1904. In the course of ten years it has increased to such an extent that there are now 1,700 employees. Those of us who have visited the works at Glasgow know the almost perfect way in which the whole arrangements are made, not merely for the scientific side, but for the comforts of the men, including the working dress which in itself becomes a uniform. It gives some idea of the scientific side to know that there are at the present moment twenty-three men with high university qualifications, most of them with university degrees, and many of them men who were absolutely the first on the college list in the final examinations. This industry is another illustration of the lead given to Germany by this country, because the Barr & Stroud range-finders were brought out before any of the German range-finders of the kind now being made, the Germans having followed in their lines, and copied them in many respects. I have enlarged upon this because I cannot help pointing out that the Barr & Stroud range-finders have had no small effect in the marvellous precision of our naval guns, and it will no doubt pass through your minds what we owe to private enterprise which started the manufactures of the turbines, range-finders, guns, and other naval features, when we think of such battles as those off Heligoland or the Falkland Islands.

Now I do not believe the Germans despise us for our want per se of the application of science to industry. I do not think they have much reason to; but what they do despise us for is the want of co-ordination, which I venture to say amounts to positive slackness, which they are keen enough to observe permeating the whole of this country. They see different sections, instead of being united for a common end, quarrelling with each other, filled with mutual suspicion and distrust, with apparently no common bond of union, and whereas the German is proud of the Fatherland, he sees in this country large numbers who seem, either through self-consciousness or ignorance, to be ashamed to mention the subject of the British Empire, or what is worse, to acknowledge that any love of their country is or could be a mainspring and incentive to strenuous effort.

The other day Field-Marshal von Moltke stated, and there is no reason to disbelieve him, that great as was the storage of ammunition and shells before the war, the enormous demand far exceeded all expectation, and Germany found herself for a time in the same plight as her enemies, but he further stated that Germany's emergence "from this dangerous position was largely due to the extraordinary organisation, which included not merely the adaptation of their factories for munition purposes, but capacity for work of the people, and the patriotic spirit of the German workmen."

This brings me to consider what is probably the most serious feature in our national life to-day, which I have already alluded to under the heading of Education—viz., the relation of employer and workman. It is hopeless, as long as such ideas prevail which seem to do at present, to think of any sound organisation of our industrial system taking place, because the interdependent parts are not arranged (and can never be arranged until we change radically) with respect to the whole. Now, as one who has served an apprenticeship, who has taken his money weekly from a tin box with hundreds of other men, who has been a member of the Amalgamated Society of Engineers (in fact, was working as an engine fitter when a Whitworth scholarship made a college career possible), I am the last man to put this evil down entirely to the working man. I know individually he is quite as capable of patriotism as any other class. Get him by himself, even the men whose strikes have caused such despondency in the minds of our Allies, and who have seriously jeopardised the very existence of the country, and you will find (except in the sort of case to be found in all classes of society) that he, as an individual, is willing to make sacrifices, and if necessary to give himself for his country. The truth is that the canker which is eating the heart out of our industrial life is due to an entirely wrong attitude of mind. For instance, however much we may sympathise with men who see a loss of employment in the introduction of labour-saving machines, some means should be found by which they can share the benefits to the State and to their employers by the introduction of such machines. I should like, if I had time, to say something about the marvellous organisation of the Ford motor-car works in America, and how it has given the men a share in the returns of a great industry, and thereby induced them to work in a way that has enriched themselves, their employers, and their country. We have many splendid examples of this co-operation in this country. For instance, Messrs. Allen, of Bedford. Again, the employment of women in the engineering industries has taken place in many directions owing to the war. The works with which I am associated could not have undertaken much munition work without it. Some steps should be devised by which the avenue of industry is not closed to women after the war, while justice is secured for the men alongside of whom they are working, and from whom they are in many instances learning mechanical skill. Again, the questions of piecework and overtime must be seriously considered by the State, and not allowed to become the subject of disastrous disputes. Once more there is the question of a standard wage. It is against the eternal laws of nature to try and keep living beings at one dead level of equality and merit—i.e., it is against the law of the survival of the fittest. The trade unions have a great opportunity of placing their country and themselves in a leading position amongst nations if they will courageously grapple with a great problem by recognising degrees of merit and corresponding degrees of payment. These are a few of the many matters which must be dealt with in the immediate future.

The matter of labour disputes is so serious as to demand plain speaking. It must be admitted that there are many employers and companies which, to satisfy themselves and their shareholders, extort the largest possible dividends and pay the smallest possible rate of wages, and do so apparently without the slightest idea that the men and boys under them are capable of education and personal influence. Can it be wondered, then, that men under these conditions are willing enough to listen to the orator who merely appeals to their fighting instincts and join in the game of grab as against the employer? On the other hand, strikes have occurred when employers have honourably carried out their obligations and undertakings, and the men have shamefully departed from an agreement made by their chosen leaders, throwing over the leaders the moment they have fancied it to their own selfish interests to do so and without a single thought of their duty to the community as a whole.

We have recently seen the Prime Minister and other leading statesmen struggling, sometimes in vain, to bring large bodies of men to a reasonable state of mind. Is not this (and I speak without the slightest reference to party

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questions) a case of nemesis overtaking us for having in so many cases pandered to the selfish instincts of large bodies of men in order to secure their votes, instead of sternly telling them unpalatable truths?

There was recently an intensely interesting article by the late Professor Friedrich Paulson, previously Professor of Philosophy in Berlin University, published in the "Educational Review" of New York. In this article, the subject of which was "Old and New Fashioned Notions about Education." he pointed out that the whole of our educational system was going wrong, and that we could not escape the conviction that a tendency towards weakness and effeminacy was its chief trait. His three mottoes were: learn to obey; learn to apply yourself; learn to repress and overcome desires; and he remarked with great truth under the first heading: "He who has not learned to do this in childhood will have great difficulty in learning it in after life; he will rarely get beyond the deplorable and unhappy state that vacillates between outward submission and uproarious rebellion."

Is not one of the first things the reform of our educational system?

The other day a writer in the "Spectator" said with great truth that "what Great Britain is suffering from acutely and dangerously at the present time is the absence of discipline," and a neutral writer in the "Times" remarked as follows: "The uniformity of German effort, due doubtless to their myriad well organised, machine-like minds, though it renders them excessively tiresome people to dwell among in peace time, enables their Government to extract every ounce of energy in the conduct of the war." He further went on to say that the British Empire "could not have been created by minds like these, but it should not be forgotten that in the concentration necessary to national effort in a struggle like this the German system of self-subservience to the State has enormous advantages."

One of the tasks to which the British Association might bend its energies with the greatest benefit to the country is to bring about a reform of our educational system, so that while we do not kill individual enterprise and freedom of thought, which have contributed so largely to the political organisation and constitution of the British Empire, of the value of which we have had such wonderful evidence from our colonies and dependencies during this war, we seek to implant in the minds of young and old those ideas of discipline and service to the State, the want of which so seriously threatens the successful organisation of our industrial life.

SOME OF THE LARGER PROBLEMS OF TOWN PLANNING.*—I.

By Thomas H. Mawson, Hon.A.R.I.B.A.

In undertaking the remodelling or improvement of an existing city, and especially an ancient city, and in the creation of a new one, we have two problems which, in one way at least, are fundamentally different. In the first case we have before us not only so many streets, so many buildings, and so many spaces with which to deal, but, which is far more important, the individual communal and civic spirit, which has, perhaps, been growing and solidifying for centuries, and which has made the city what it is socially, politically, morally, educationally, and commercially.

In the new city, on the other hand, we are faced with the task of estimating, so far as we can, what form the city's individuality will take and how far its course of development may be influenced for good, and to what extent the development is beyond our control and must be met and allowed for in all our operations.

It will thus be seen that, whether the sphere of operations be an old city or a new one, the first essential of the city planner is a thorough study of the origin and growth of cities, coupled with that knowledge of men and things and that reverence for the antique which always accompanies it, so that he may be able to read, on the face of things as they exist, not only the city's history, but the impress of the civic spirit and the individuality resulting therefrom.

From the very earliest days, from the days in fact in which men first joined forces for defence against mutual foes, whether they be rival tribesmen or the elemental forces, the paramount motive in city building has been strategic, and nothing is written so large and so plain to see on the fabric of towns as this strategic element. At every point in their history it has had its influence, and nothing could be more mistaken than to suppose that it is not visible in the new towns which are growing at the present time in our own country, but more particularly in our Colonies. The strategic factor is present to-day, for each city seeks a site which will give it strategic advantages in the field of commerce just as the old city did for the field of battle. The scene has shifted, but it is the same stage and the same drama—shall we say?—"localised."

It is in the field of commerce, however, that the strategic factor has made itself felt in the cities and towns of this country, at least in all but the oldest, though the principle is by no means new. To show this, one has only to quote the cities of the Holy Land, where the oldest commercial centre in the world grew up along the great trade route joining Europe and Asia with Africa, and the same principle is evident in the placing of all coast towns throughout all the world.

There are, of course, exceptions to the rule in the case of places which have arisen at the will of a despot, such as La Venerie Royale Turin, which was formed as a hunting seat for the reigning Duke of Savoy.

Having solved the origin and growth of the city, and having determined what factors contributed to its placing, we now have to determine how far those conditions still operate and to what extent; and also what other factors have grown up in the city's life, and are likely to grow up in the future, which will modify or change the direction of these influences.

First of all, throughout our investigations we shall find the evolutionary principle at work, and the more we look into the matter the more we shall become convinced that nothing happens in the whole history of a city which has its influence on its growth or decay which does not partake of the nature of an influence working through evolutionary processes.

Take, for example, the thriving town of Bolton. Trinity Street Station is the principal railway station, and, for the town planner's purpose, practically the only one. It is well planned, spacious, and up-to-date and well placed, being in immediate connection with two main thoroughfares within easy reach of the town square and markets. There are two main routes of communication between it and the centre of the town. If asked which of these main routes was most likely to prove the best thoroughfare attracting the greatest amount of traffic and the best business premises, Bradshawgate on the west or Newport Street on the east, all would agree that the latter would do this, for not only is it the most direct route, but it passes through Victoria Square, which is really a fine proportioned open space adorned with a large and handsome Town Hall, the tower of a large church comes right opposite the end in a bold and effective manner, and it serves both the wholesale and retail markets. Nevertheless, the opposite is the case, and while Newport Street has stood still, Bradshawgate has developed into a busy and up-to-date thoroughfare. This is a little difficult to account for until we take into consideration those evolutionary factors which have made the town what it is. The chief of these, in this case, is the route taken by the main roads out into the country, which one and all connect with the older street Bradshawgate, thus giving it an advantage which the other thoroughfare is unable to compete with, notwithstanding its many advantages.

If the town planner is to realise the highest and the best that each opportunity affords, he must cultivate the broad outlook and must carry his survey far beyond the confines of the place itself. For instance, in the very district of which we have been speaking, it is possible to go distances of nearly forty to fifty miles by street tramways, and all the time one will rarely be out of sight of shops and houses and mills.

While, however, it would be disastrous for the town planner to approach his task with preconceived ideas as to the direction his improvements should take, he will always find that the main part of his preliminary work in first viewing the sphere of his labours and making an itinerary to get the geographical factors fixed in his mind will revolve round these first principles. After them, however, it will be found that the problems vary enormously. Thus the ecclesiastical, educational, commercial, manufacturing, ship-

* Abstract of the first of two lectures delivered before the Town Planning Institute.

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ping, and capital or administrative cities will each need special planning for their several purposes.

The whole of the work of the planning of a town should not fall upon the shoulders of one man. This is far too much to expect of one individual, and no man could possibly be omniscient enough to render such an experiment successful. Whilst admitting many notable exceptions, it may be said that the bane of the town, village, and suburb planning which has been done so far has been that it has been placed in the hands of men who have usually been chosen for the task because they have shown considerable ability in one side of the work, such as architecture or administration, and who have been expected to evolve out of their inner consciousness a scheme which shall fulfil the social, practical, or artistic requirements, of which their special training has given them no expert knowledge.

A town plan must be the result of the joint efforts of the surveyor, the architect, the sanitary engineer, and the landscape architect, the sociologist, and, in the case of an old town, the antiquarian; never forgetting, of course, the necessity for legal guidance at every stage of progress.

The town planner's province is to take the results of the labours of his confrères in city building and weld them into one co-ordinate and self-contained whole, a whole which shall express efficiency and beauty from every point of view, and from every standpoint, without sacrificing for one moment any of the solid qualities demanded by the practical citizen. This he will do, not by the superposition of meretricious ornament, but by balancing mass against open space, height against breadth, the open vista against the enclosed colonnade, level masses of subdued and restrained architectural façades against the telling note of the tower with its strongly marked vertical lines, nobly spreading trees against the open glade, bright colours reflected in still water, and so on, all in mass and with the broad outlook, leaving to the architect and the horticulturist the filling in of details in a manner consonant with his vision of the city to be.

If the city planner adequately fills his office, he will be in direct communication with all the specialists during the whole process. His is a task calling for infinite patience and infinite tact, but above and beyond this his training must fit him to sympathise with the aims and the point of view of all the others. He must have a knowledge in the round of each art which is necessary to his work, not only that he may the better understand and appreciate the point of view of each specialist, but in order also that he may adequately fulfil his special task, which consists in forming one concrete whole composed alike of the artistic and practical out of the mass of oftentimes conflicting material which the various workers will place in his hands.

The poverty of our attainment in practice may belie our ideals, but let us not lower the standard on that account, but rather, attributing our lack of success to an inadequate conception of the goal to be reached, strive to purify our ideals, and so purge them of the element of failure.

Bearing this in mind, let us take the main principles enunciated and see what are a few of the more obvious lessons to be drawn from them. We shall then find:—

That each part of the city plan and each separate feature should be designed with strict regard to its connection with every other part.

That all efforts of town improvement demand that broad outlook which, by co-operation with other arts and sciences, will embrace and correlate factors belonging to all sides of the subject: æsthetic, ethical, sociological, hygienic, commercial, and recreational.

That the principle of design-in-mass with the accent concentrated and the mass subdued should receive due recognition.

That only by the broad outlook which will comprehend the past and the present and, as far as is humanly possible, the future, and which will grasp and control all the factors which make for the evolutionary advance or decay of cities, can success be achieved.

But our schemes to-day must be something more than mere academic proposals—we have, in short, to prove that what we plan will also pay, either in the shape of interest (in terms of money) on the capital expenditure, or in terms of increased mental power or physical efficiency.

The practical man has always at the back of his mind an adequate return on his expenditure, and he has a perfect right to expect it. The only reasonable position town planners can assume is that an adequate return on municipal expenditure can be attained solely by the adoption of town-planning methods, and this further fact that, when we have attained perfect efficiency, which is always economic, in any department of our enterprise, we have at least laid the foundation of true beauty, for utility itself is potentially beautiful. On the other hand, the creation of beauty, as in a public park, is only economic in proportion to the number of individuals whose needs it properly serves, and this depends upon accessibility.

The first essential of a town plan is that it be compact with its many activities, commercial and industrial, concentrated to secure every advantage of transit, especially of heavy inward and outward manufactures, and where it can take full advantage of cheap power, light, and heat. Our plans should aim at reducing the wear and tear over main arteries by the reduction of heavy traffic by placing factories and power stations and warehouses in direct connection with railway system, river, and seaports.

Having first secured the most strategic and economic position for works, it becomes in consequence possible and as a natural corollary to house the workpeople in the most perfect manner—and from this a reflex action will take place, and the additional profits derived from an economic position invested in model housing will on its part pay double interest in the shape of increased physical and mental efficiency.

The circulatory system of arteries and main roads should form the anatomy of our plan, and should be first worked out diagrammatically, our chief care being to secure a scientific and economic solution of the traffic problem which will aim at directness and avoid steep gradients or tortuous roads, for every loss of momentum is a tax on the community.

PHYSICAL CHARACTERS OF THE ANCIENT EGYPTIANS.*

In last year's report of the Committee I referred to the fact that material of great historical importance was being found by Professor Reisner at Kerma, near the Third Cataract, and that some of the skeletons had been sent to me in Manchester for examination. Since then a very large collection of human remains from the same site has been received from Dr. Reisner; and, although most of this material has now been photographed and measured, the investigation of it is not yet sufficiently advanced to permit me to submit a final report upon it. It is of sufficient importance, however, to justify an interim report.

In the Bulletin of the Boston Museum of Fine Arts, April 1914, Professor Reisner has published a very interesting and fully illustrated account of his excavations at Kerma, with a description of the circumstances under which the human remains were found and the nature of the remarkable series of objects found with them.

In this report the human remains are described as those of "a garrison which held the Northern Sudan in the Hyksos Period, about 1700 B.C." To appreciate more fully the nature of the material with which I have to deal I may be permitted to quote Dr. Reisner's own account of the problem he puts to me to solve for him.

"By 2600 B.C. the Egyptian had already begun his exploitation of the Upper Nile, and had been led in military force as far as the province of Dongola, the richest area between the Assuan border of Egypt and the tropical Sudan. Gold he certainly brought away and cattle; ivory, ostrich feathers and eggs, ebony, skins, resins, spices, and incense—all came through the province in trade if they were not produced here." Traces of the Old Empire fort and alabaster vessels bearing the name of Pepy I. were found at Kerma. "During the period of depression in Egypt which followed the reign of Pepy II., it is probable that the Nubian tribe went their own way undisturbed. In the Middle Empire, however, the exploitation of Nubia by Egypt was resumed and placed on a more secure footing. Sesostris III. set up a boundary-stone at Kummeh, south of Halfa [Second Cataract], forbidding any negro to pass northwards by land or water except traders and official messengers. This stone marked the southern border of Egypt, but, as a matter of course, not the limits of Egyptian activity." [Inscriptions with the names of Sesostris I., Amenemhat I., and Amenemhat III., together with fragments of perhaps twenty-five Middle Empire royal statuettes, make it] "quite clear that Kerma was held by the kings of Egypt during the Middle Empire."

(*Continued on page* 313.)

* A report by Professor G. Eliot Smith, presented at the summer meeting of the British Association.

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ROLL of HONOUR

ARCHITECTS, ARCHITECTS' ASSISTANTS AND STUDENTS SERVING IN HIS MAJESTY'S FORCES

Hasledene, C. W. F., 2nd Lt.	5th Lincolns.
Haswell, F., 2nd Lieut.	6th Northumberland Fusiliers.
Hatchard-Smith, W. H., 2nd Lieut.	5th Batt. East Surrey Regt.
Hawker, A. V., 2nd Lieut.	Gloucester Regt.
Hawkes, T. F.	Queen's Westminsters.
Hay, Chas., Lieut.	Canadian Forces.
Haymes, R. E.	2nd Batt. 1st Hereford Regt.
Haynes, R. E.	2/1st Herefordshire Regt.
Hayward, A. B., 2nd Lieut.	14th Batt. Manchester Regt.
Hayward, A. B., L.-Corpl.	Royal Fusiliers.
Heal, A. Victor, 2nd Lieut.	6th London Brigade, R.F.A.
Healing, J. B., 2nd Lieut.	Bedfordshire Regt. (Duke of Bedford's Batt.).
Heathcote, C. H., Major	Sherwood Foresters.
Hebblethwaite, B. R.	2nd London Sanitary Company, R.A.M.C.
Hector, A. O.	P.P.C. L.I. (Canada).
Hedderwick, D. B., S.Q.M.S.	Westminster Dragoons.
Hedley, G. E.	Canadian Field Artillery.
Heiton, A. G., Capt.	Black Watch.
Helbronner, P. M.	French Army.
Hembrow, Jas., Sergt.	R.A.M.C.
Henderson, D. L.	Cameron Highlanders.
Henderson, E. E. J.	2nd P.S. Batt., Royal Fusiliers.
Henderson, H. E.	Active Service, British E. Africa.
Henderson, J.	16th Batt. Northumberland Fus.
Henderson, J. A.	West Kent Yeomanry.
Hendry, H. D.	Artists' Rifles.
Hendry, W. J.	Black Watch.
Henman, C. H. R.	Engineer Unit, R.N. Division.
Hennell, Sidney T.	20th Batt. Welsh Regt.
Henshaw, F., Lieut.	Territorial Force Depot.
Heppel, F. H., L.-Corpl.	8th Batt. Worcester Regt.
Hepworth, P. D., 2nd Lieut.	3/4th London Field Co., R.E.
Herford, Theodore	1st Life Guards.
Heron, David, Gunner	R.F.A.
Hett, A. J.,	Royal Engineers.
Hett, L. K., 2nd Lieut.	Royal Engineers.
Hewitt, A. K.	6th Batt. Norfolks (Cyclists).
Hewitt, S. G., Lieut.	16th Batt. Cheshire Regt.
Hibbert, Arnett	H.A.C.
Higgs, H. J., Corpl.	Royal Engineers.
Higgins, C. J., Col.	2/3th London Brigade, R.F.A.
Higginson, Frank, Sergt.	14th Batt. 1st Royal M. Regt., C.E.F.
Higginson, H. Scott, Corpl.	14th Batt. 1st Royal M. Regt., C.E.F.
Hill, D., Staff Capt.	5th N.F.
Hill, Erskine, Driver	H.A.C.
Hill, G. N.	1st City Batt., King's Liverpool Regt.
Hill, H. H., 2nd Lieut.	Royal Anglesey R.E.
Hill, J.	H.A.C.
Hill, R. M., 2nd Lt.	12th Northumberland Fusiliers.
Hill, R. N. E.	H.A.C.
Hill, O.	London Scottish.
Hill, W., Lieut.	9th Batt., D.C.L.I.
Hillier, H. W., Lieut.	R.N. Aircraft Section.
Hillson, Leo. S.	6th Highland Light Infantry.
Hillyer, W. H., Capt.	R.E., attached 171st Mining Co. (Wounded.)
Hinderer, C. M. B.	East African Pioneer Company.
Hinton, C. A., Lieut.	5th King's Own Royal Lancaster.
Hinton, J. G., Lance-Corpl.	1/5th King's Own Royal Lancs.
Hipkins, F. W.	Sheffield Batt., York and Lancaster Regt.
Hitch, J. O. B.	Artists' Rifles.
Hitchcock, Cyril W., Capt.	Monmouth Regt.
Hitchings, A. C.	15th Batt. R. Warwickshire Regt.
Hitchings, A. C.	2nd Birmingham Batt. Royal Warwicks.
Hitchins, W. W., Sapper	Royal Engineers.
Hobbiss, H. W., 2nd Lieut.	2/1st S.M. Warwick. R.G.A.
Hobbs, J. Mervyn	1st Australian Division.
Hobson, J. Reg.	O.T.C.
Hodges, J. S., Lieut.	6th Batt. Royal Fusiliers.
Hoffman, C.	Royal Engineers.
Holbrook, A. L.	7th Batt. Notts and Derby Regt.
Holden, J. Lenton, Sapper	Royal Engineers.
Holder, T. G.	1st Birmingham Batt. Royal Warwicks.
Holland, H.	4th Batt. Royal Fusiliers.
Holland, P. E., Lieut.	A.S.C.
Holman-Hunt, H. L.	Burmah P.W.D.V.
Holmes, Arthur H.	Inspector of Works, R.E.
Holmes, B. Scott, 2nd Lt.	C.L.B. Batt. K.R.R. Corps.
Holmes, Charles, 2nd Lieut.	3rd Batt. West Yorks Regt.
Holroyd, F.	R.A.M.C.
Holroyd, W.	R.F.A.
Holt, Felix	19th King's Liverpool Regt.
Holt, G. H. G.	2nd London Scottish.
Holtom, E. G., 2nd Lieut.	7th Lancs. Fusiliers.
Honan, M., Capt.	10th Batt. S. Lancs. Regt.
Hooper, Arnold F., Lieut.	5th Batt. Royal West Kent.
Hooper, C. Owen	Hants Carabineer Yeomanry.
Hooper, F. B., Sapper	Royal Engineers.
Hopewell, J. H., 2nd Lieut.	6th Batt. Leicester Regt.
Hopkins, Percy, Major	13th County of London.
Horne, G. Wyville	Artists' Rifles.
Horsfield, J. Nixon	R.N.V.R. (Died of Wounds).
Horsley, R. C.	London Irish.
Horsman, W. J. L., Corpl.	R. Gloucester Hussars.
Horsnell, A. G.	Artists' Rifles.
Horth, F. J.	Artists' Rifles.
Hoskin, T. S.	Royal Engineers.
Hossack, W. B., 2nd Lieut.	Lowland Engineers.
Hough, T. B. D., Lieut.	8th Batt. East Yorks Regt.
Howard, P. G. M., Corpl.	Glam. Fortress, R.E.
Howcroft, G. B., 2nd Lieut.	7th Batt. West Riding Regt.
Howe, J. Liberty, 2nd Lieut.	A.S.C.
Howell, R. B., 2nd Lieut.	4th Batt. N. Staffs. attached 2nd Batt. Northumberland Fus.
Howitt, T. C., Lieut.	9th Leicestershire.
Howse R. J.	
Hubbard, Harry	9th Batt., H.L.I.
Huddart, R. M. F.	Royal Engineers.
Hudson, C. H., 2nd Lieut.	1st King's Liverpool Regt. (Killed).
Hudson, E. R., 2nd Lieut.	Royal Engineers.
Hudson, P. S., 2nd Lieut.	Royal Engineers.
Hughes, Basil, Lieut.	Royal Engineers (Staff).
Hughes, Ernest	10th Batt. Liverpool Scottish.
Hughes, T. Harold, 2nd Lt.	Artists' Rifles.
Humphrey, F. J., Sapper	Royal Engineers.
Humphrey, G. A.	Mech. Transport, H.C.D.
Hunt, A. E., Lieut.	5th Batt. K.O.R. Lancaster Regt.
Hunt, N. S.	Univ. and Public Schools Regt.
Hunt, Stanley, 2nd Lieut.	5th Batt. Durham Light Inf.
Hunter, Arthur	Scottish Horse.
Hunter, G. E., Capt.	Northumberland Fusiliers.
Hunter, Maurice, Lieut.-Col.	5th Batt. Sherwood Foresters.
Hurst, G. T., Major	3rd Natal Mounted Rifles.
Hutton, G.	Scottish Horse.
Huxley, J. S., 2nd Lieut.	9th Batt. S. W. Borderers.
Hyde, R. R. W., Corpl.	13th Batt. Royal Sussex Regt.
Impey, L.	7th Royal Fusiliers.
Ingleton, D. F., Sergt.	Glam. Yeomanry.
Inglis, T. Stewart, Major	1st London Brigade, R.F.A.
Ingram, T. F.	A.S.C.
Inman, G. H. N.	Artists' Rifles.
Iredale, A. L., Lieut.	A.S.C.
Irwin, J. H.	4th Seaforth Highlanders.
Irwin, S. F., 2nd Lieut.	3rd Batt. East Surrey Regt.
Isherwood, W. R.	Northern Cyclists' Batt.

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Jack, G. H., Lieut. . . Royal Irish Fusiliers.
Jackson, B. de C. . . H.A.C.
Jackson, C. E. . . . Uganda Volunteer Company.
Jackson, John, Corpl. . . Black Watch.
Jackson, N. C., 2nd Lieut. Gloucester Regt.
Jackson, S. S., Lieut. . . East African Carrier Corps.
Jackson, T. G. . . . R.N.V.R. (Anti-Aircraft).
Jacob, J. H., L.-Corpl.. . H.A.C.
James, A. G., 2nd Lieut. . 4th Batt. Northampton Regt.
James, Angus . . . A.S.C.
James, C. H. . . . . 5th Gloucester Regt.
James, H. V. . . . . 5th Batt. Gloucester Regt.
Jane, Wm., Capt. . . 1/3rd Wessex Field Company, R.E.
Jaques, T. A. . . . Artists' Rifles.
Jardine, H. S. . . . London and Scottish Rifles.
Jay, H. . . . . Royal Engineers.
Jeffrey, C. A. . . . 4th Devon Regt.
Jeffrey, H. M. . . . Royal Engineers.
Jelley, F. R. . . . . R.A.M.C.
Jenkins, F. . . . . 1st West Lancs., R.A.M.C.
Jennings, C. H. . . . Sheffield Batt. Yorks and Lancs. Regt.
Jepson, H. Norman . . 33rd Divisional Signal. Co., R.E.
Jessop, Bernard, Lieut. . 8th Batt. Yorks Regt.
Jezzard, R. J. . . . 4th Highland Mountain Brigade, R.G.A.
Johnson, A. G., 2nd Lieut. 7th Batt. Essex Regt. (Wounded.)
Johnson, F. L. . . . 8th Batt. Argyll and Sutherland Highlanders.
Johnson, R. S., Lieut. . . Northern Cyclists' Batt.
Johnson, W. H. . . . R.E. (Temporary Div. Officer).
Johnston, J. V. . . . Royal Engineers.
Jones, A. L., 2nd Lieut. . 3rd Batt. Dorsetshire Regt.
Jones, David, Trooper . Yeomanry.
Jones, C. F. . . . . R.N.V.R. (Anti Aircraft).
Jones, L. F., Capt. . . 12th City of London Regt.
Jones, N. Wynne . . . 38th Welsh Div. Cyclists' Company.
Jones, O. Campbell . . H.A.C.
Jones, Ronald P. . . . Staff Motorist, 2/1st Anglian Div.
Jones, R. S. . . . . Artists' Rifles.
Jones, Treherne H. . . 11th Welsh Regt.
Jones, W. G. . . . 2nd Batt. Queen's Westminsters
Jones, W. H., Sapper . . Royal Engineers.
Jones, W. Orlando . . P.S. and U. Batt. Royal Fusiliers.
Jory, E. B., Lieut. . . 18th Batt. Welsh Regt.
Joslin, G. A., Bombr. . . 8th London Howitzer Brigade.
Joynson, L. C. B., Lieut. . 6th Batt. Royal S. Staffs Regt.
Joynson, V. I. . . . East African Rifles.

Kay, Mitchell C., L.-Corpl. London Scottish Rifles.
Kaye, Stewart . . . 9th Royal Scots.
Keeble, P. T. . . .
Keesey, W. M., 2nd Lieut. . Royal Engineers.
Kennedy, E. R., 2nd Lieut. 8th Batt. Royal Irish Rifles.
Kennedy, John G., Sapper . 2/2nd E. Lancashire R.E.
Key, W. Donald . . . Seaforth Highlanders.
Keys, P. H., 2nd Lieut. . Royal Engineers.
Keyte, J. R. . . . . 1st S. Mid. Brigade Mounted Field Ambulance.
Keyworth, C. F., Driver . R.A.M.C.
Kibblewhite, H. J. F. . . Empire Batt. Royal Fusiliers.
Kidd, H. D., 2nd Lieut. . 4th Batt. Cameron Highlanders.
King, Ebenezer . . . 8th Royal Scots.
King, G. E. . . . . 12th Batt. Sherwood Foresters.
King, G. G. . . . . Public Schools and Univ. Batt. Royal Fusiliers.
King, H. D. . . . . 12th County of London Regt.
King, W. . . . . R.A.M.C.
Kinman, G. A. . . . Sheffield Batt. York and Lancs. Regt.
Kinna, Kenmure . . . Royal Scots.
Kirby, E. B., Capt. . . 3rd West Lancs. Brigade, R.F.A.
Kirk, Albert E., Lieut.-Col. 7th Batt. West Yorks Regt.
Kitson, S. D., Lieut. . . Yorks Hussars.
Knapp Fisher, Div. Officer . Att. 16th Batt. K.R.R.C. for R.E. Services.
Knee, W. H. . . . . Royal Engineers.
Knight, D. E. . . . . O.T.C.
Knight, James E., Major . 5th Batt. York and Lancs. Regt.
Knight, Shirley . . . Royal Engineers.
Knights, R. E. V.. . . 13th County of London Regt.
Knott, A. J. . . . . South African Artillery.
Knott, E. R. . . . Hants Yeomanry.
Knowles, W. H., Capt. . 1st Northumberland Brigade, R.F.A.
Kruckenberg, F. L. . . 1st W. Riding Field Ambulance.

Laing, George . . . Royal Engineers.
Laird, Jas. W., Capt. . . 6th A. and S. Highlanders.
Lamb, H. A. J., Corpl. . 13th Divisional Signal. Co., R.E.
Landstein, A. . . . Lancashire Hussars.
Langford, Bonn. . . . Westminster Dragoons.
Langham, Claude S., Corpl. 2/2nd S.W.M.B., F.A., R.A.M.C.
Langlands, Cecil . . . H.A.C.
Langman, H., 2nd Lieut. . 12th Batt. Royal Warwicks.
Last, B. . . . . R.A.M.C.
Lavender, E. C. . . . 5th S. Staffs Reserve Batt.
Law, C. Orlando, 2nd Lieut. Royal Engineers.
Lawrence, Frank D. . . Princess Patricia's Regt. (Killed).
Lawrie, Allan, Lieut. . . 6th Scottish Rifles.
Lawson, F., Capt. . . Northumberland Fus. (Killed).
Lawson, J. Boyd . . . London Scottish.
Lawson, S. H., 2nd Lieut. . R.F.A.
Lawton, A. E., Staff-Sergt. R.A.M.C.
Lawton, R. A. . . . 5th City Batt. Manchester Regt.
Lawton, W. L. . . . A.S.C. (Transport).
Leahy, W. J., Corpl. . . Motor Cycle Section.
Leaning, S. . . . . 21st Batt. London Regt.
Leathart, J. R. . . . Royal Bucks Hussars.
Leatherdale, F. H. . . R.A.M.C.
Ledgard, W. A., 2nd Lieut. 7th West Yorks.
Ledger, G. H. . . . R.N.V.R. (Anti-Aircraft).
Leech, W. Leonard B. . 9th County of London (Killed).
Leeson, N. E. . . . Northumbrian Division, R.E.
Leest, E. M., Capt. . . 5th Devonshire Regt.
Lefeaux, R. L. . . . 5th Gloucesters.
Legg, T. E. . . . . 2/3rd East Anglian Field Amb.
Leggett, M. C. M. . . Uganda Volunteer Company.
Lemon, J. . . . . R.F.A.
Lennox, H. . . . . 7th West Yorks.
Lenton, F. J. . . . . Royal Engineers.
Leroy, A. D. . . . . R.N.V.R. (Anti-Aircraft).
Lewis, Harold M. . . . Public School Corps.
Lines, R. W., Lieut. . . 49th Infantry Regt., Canada.
Lipscomb, S. G., 2nd Lieut. 3/3rd (City of London) Batt. Fus.
Lister, H. A. . . . . R.A.M.C.
Lister, T. G. . . . . 1st Monmouth Regt.
Little, T. C. . . . . 3rd South Midland Field Amb.
Livesay, F. H., Capt. . . 6th Batt. Durham L. Infantry.
Livingston, W. . . . Fife and Forfar Yeomanry.
Lloyd, A. P., 2nd Lieut. . Welsh Regt.
Lloyd, H. Chadwick . . Univ. and Public Schools Batt.
Lloyd, W. H. . . . Univ. and Public Schools Batt.
Loades, L. A. . . . Royal Engineers.
Locke, W. W. . . . . R.A.M.C.
Lockhart, W. D., Lieut. . Royal Engineers.
Lodge, A. L. . . . . O.T.C.
Lodge, A. R., 2nd Lieut. . 24th Batt. London Regt.
Lodge, T. A., 2nd Lieut. . 24th Batt. London Regt.
Lofthouse, W. G . . . 2nd Birmingham Batt. Royal Warwicks.
Lone, Reginald . . . R.A.M.C.
Long, C. W., Capt. . . London Rifle Brigade.
Longstaff, F. V., Major . 5th Batt. East Surrey Regt.
Love, R. S. B. . . . 12th County of London.
Lovegrove, G. H. . . . H.A.C.
Lovell, C. E., Lieut . . 9th Bat. Royal West Kent Regt.
Lovell, J. P. . . . . P.S. and U. Batt. Royal Fusiliers.
Lovell, P. W., 1st Lieut. . 6th Batt. Northumberland Fus.
Low, Alastair . . . Scottish Horse.
Low, J. W. . . . . R.N.V.R.
Lowcock, Arnold . . . R.F.A.
Lowcock, C. . . . . R.F.A.
Lowcock, G. . . . . 3rd Home Counties Field Amb.
Lowe, J. W. . . . . R.N.V.R. (Medical.
Lowell, R. P. . . . Public Schools and Univ. Batt. Royal Fusiliers.
Lowes, A. E. . . . . Northumbrian A.S.C. (Killed.)
Lowry, A. . . . . 6th Batt. Black Watch.
Lucas, F. J. . . . . O.T.C.
Lucas, R. N., 2nd Lieut. . Motor Ambulance Corps.
Lucas, W. L., Capt. . . R.F.A.
Luke, E. S. . . . . Scottish Horse.
Lund, J. A., Gunner . . 7th London Brigade, R.F.A.
Lurcock, H. J. . . . . West Yorks Regt.
Lutyens, E. J. T., 2nd Lt. . 4th E. Anglian Brigade, R.F.A.
Lyne, D. R. . . . . R.N.V.R. (Anti-Aircraft).
Lyne, Edgar (Jun.) . . R.N.A.S.
Lyon, Maurice . . . R.N.A.S.

Macdonald, J. . . . . 4th Camerons.
Macfarlane, G. G. . . City of London I.Y.
Macfarlane, Robt., Lieut. .
Macgregor, J., Lieut. . . 3rd Lowland Brigade, R.F.A.
Machattie, J. M., Piper . 14th County of London.
Mackay, H. . . . . R.N.V.R. (Anti-Aircraft).
Mackeller, R. N. H. . . 9th Highland Light Infantry.

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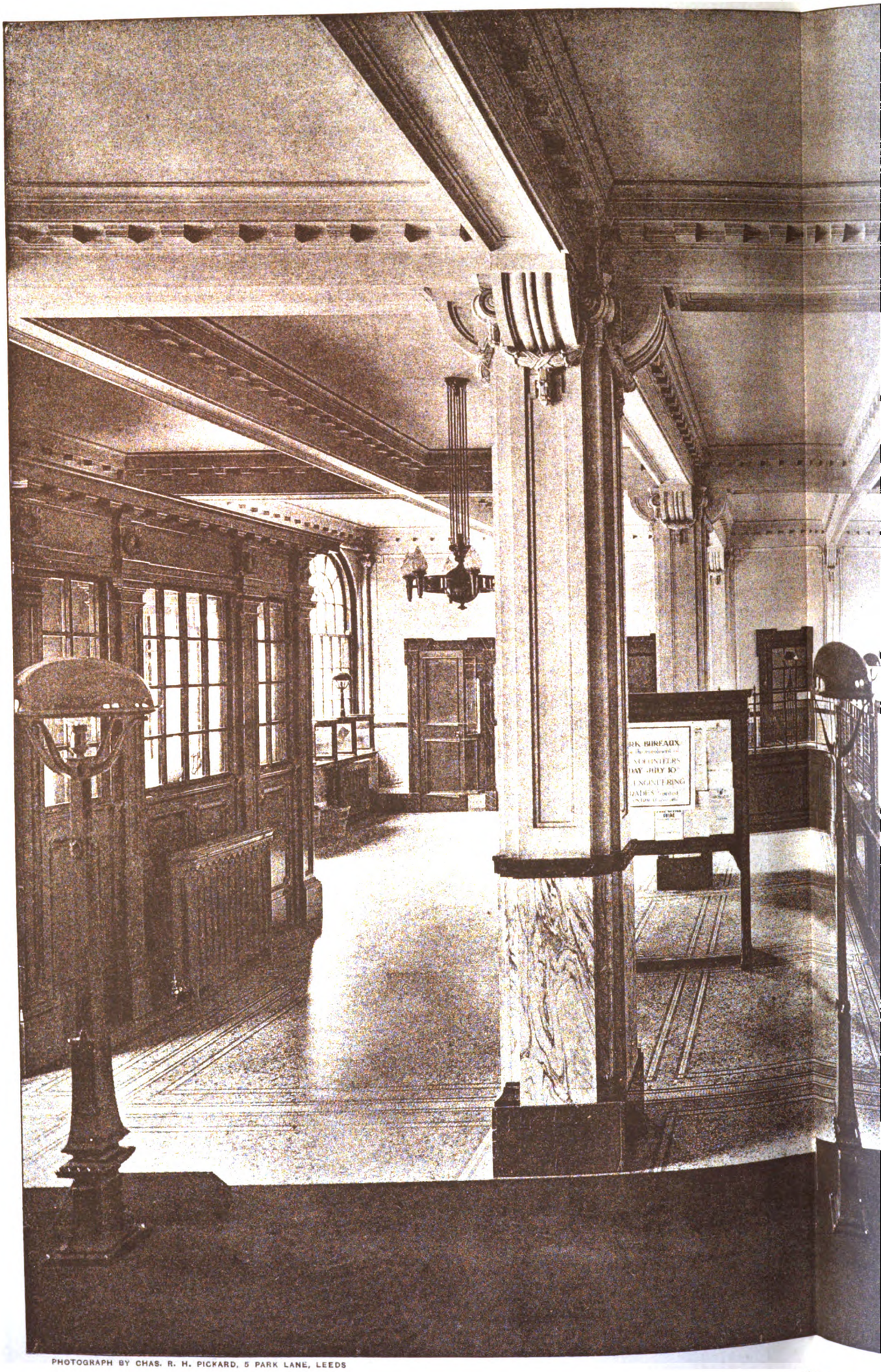
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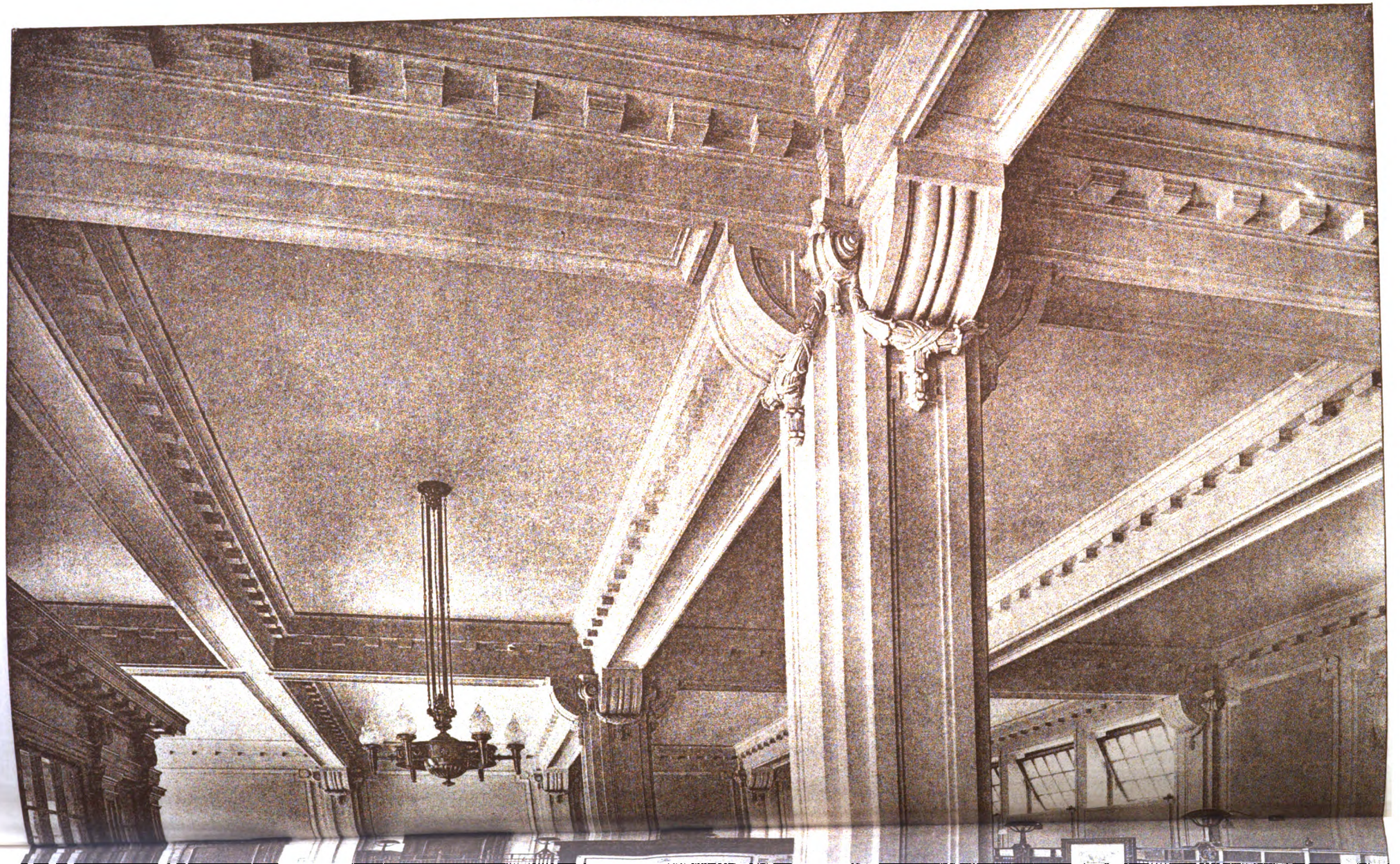
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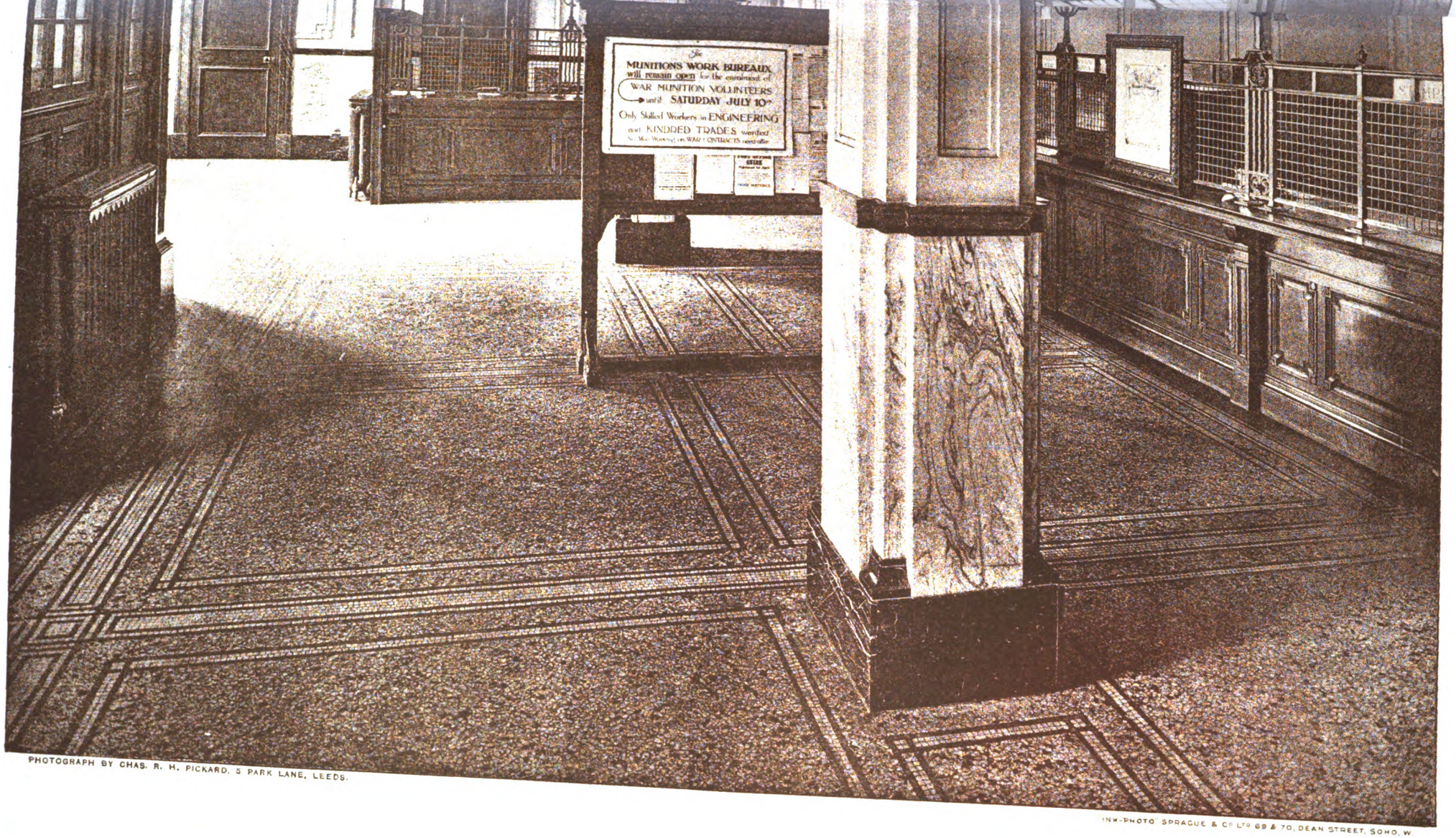
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Mackenzie, A.	Black Watch.
Mackenzie, A. G. R.	London Scottish.
Mackenzie, F. W., 2nd Lieut.	3/7th Batt. Middlesex Regt.
Mackenzie, G., Lieut.	Seaforth Highlanders.
Mackenzie, H. M.	A.S.C.
Mackie, W.	Royal Engineers.
MacLaren, W.	7th Batt. Royal Dublin Fusiliers.
Macnaughton, A. G., Lieut.	9th Glasgow Highlanders.
MacRae, E. J.	City of Edinburgh R.E.
Maddock, R. H., 2nd Lieut.	2nd Batt. Royal West Surrey
Maddox, H. T. F., Lieut.	Welsh Fusiliers.
Maitland, A. G., Lieut.	3rd Batt. Scottish Rifles.
Manlove, J. E., Lieut.	6th Batt. K.O.R. Lancaster Rgt.
Mann, E. E.	Royal Garrison Artillery.
Mann, H. W., Sergt.	Essex Yeomanry.
March, J. E.	Civil Service Rifles.
Marchant, F. O., Lieut.	5th Batt. East Kent Regt.
Marchant, O.	Yeomanry.
Marks, C. G.	12th County of London.
Marles, C. W., Corpl.	Royal Engineers.
Marley, W. H., Gunner	R.F.A.
Marshall, S. J.	Yeomanry.
Marshall,	Univ. and Public Schools Brigade.
Martin, A. C.	Univ. and Public Schools Brigade.
Martin, J. G.	Royal Engineers.
Martin, M. R.	R.A.M.C.
Martin, T. A.	London and Scottish.
Martindale, C. J. F., Motor Cyclist	Northumbrian Div., R.E.
Martyn, L. D.	R.A.M.C.
Mason, B., 2nd Lieut.	West Yorks Regt.
Mason, H. C.	5th Batt. East Surrey Regt.
Masey, C., 2nd Lieut.	Durham Fortress Engineers.
Masters, F. N. D.	2/8th London Howitzer Brigade, R.F.A.
Mathews, H. E., Major	4th Batt. Royal Sussex.
Mathews, J. B.	Royal Engineers.
Matthews, B. F., Capt.	1st Wessex Brigade, R.F.A.
Matthews, B. F., 2nd Lieut.	Royal Artillery.
Mauchlen, R., 2nd Lieut.	Durham Light Infantry.
Maufe, E. B.	R.N.V.R.
Maule, H. P. G., 2nd Lieut.	Staff Appointment.
Maw, A. R., 2nd Lieut.	2/10th Batt. Manchester Regt.
Mawson, A., Lieut.	5th Batt. King's Own Royal Lancs.
Mawson, J. R.	5th Batt. King's Own Royal Lancs.
Maxwell, A. E.	Royal Engineers.
May, T. W. V.	5th City of London Rifles.
May, W. H.	R.N.V.R.
Mayell, R. T.	Royal Engineers.
Mayhew, A. E.	R.A.M.C.
McCausland, C. J., 2nd Lieut.	2/4th Batt. K.O.Y.L.I.
McCorquodale, G. M.	No. 8 Stationary Hospital, B.E.F.
McDermott, W. K.	Royal West Kent.
McDonstell, A. J.	1st London R.A.M.C.
McGibbon, Charles E., Corpl.	7th Batt. Cameron Highlanders.,
McIntosh, D. G.	Liverpool Merchants' Hospital France.
McKinley, Edw.	9th Batt. H.L.I.
McLachlan, C.	12th Co. of London. (Wounded.)
McLean, A. J.	Artists' Rifles.
McLeod, Donald C.	7th Batt. Cameron Highlanders.
McMillan, D. S.	4th Gordons.
Meadows, S. Douglas, Lieut.	8th Royal Sussex.
Meager, K. S., 2nd Lieut.	A.S.C.
Meakin, F.	Sheffield Batt. York and Lancs. Regt.
Medlicott, W. B., Sergt.	18th (S.) Batt. Royal Fusiliers.
Mee, C. Edward	Surrey Yeomanry.
Meek, George	Tech. Coll. Co., H.L.I.
Meikle, J. A.	Univ. and Public Schools Brigade.
Melhuish, J. B.	
Mendham, J. B., 2nd Lieut.	Royal Welsh Fusiliers.
Mercer, C. W., Lance-Corpl.	4th Welsh Engineers.
Meredith, E.	15th R.W. Fusiliers (London Welsh).
Merriman, H. I., 2nd Lieut.	Inns of Court Squad., O.T.C.
Merriman, H. J., 2nd Lieut.	O.T.C.
Meston, F. W.	4th Gordons.
Methuen, Hon. A. P., 2nd Lt.	1st Scots Guards. (Wounded.)
Milburn, S. W.	Northumberland Hussars.
Milburn, W. (Jun.)	3rd Northumbrian Brig. R.F.A.
Millen, D.	Surrey Yeomanry.
Millen, Jas.	9th H.L.I.
Miller, B. A.	1st West Lancs., R.A.M.C.
Miller, Lockhart F.	2nd Dragoons.
Miller, S. R.	13th Batt. County of London Regt.
Miller, Taliesin	R.A.M.C.
Milliken, R. C., Sergt.-Major	London Elec. Eng. Co.
Mills, H. E.	Civil Service Rifles.
Mills, H. G. H.	23rd County of London.
Milne, David S.	Scottish Horse.
Milne, O. P., 2nd Lieut.	A.S.C.
Milner, J. S., 2nd Lieut.	3rd Batt. Royal West Surrey.
Minchin, W. C.	4th Seaforth Highlanders.
Minnis, Arnold, Sapper	West Riding Div. R.E.
Minor, Philip, 2nd Lieut.	5th Batt. 3rd Line Durham L.I.
Miscampbell, Alexander	A.S.C.
Mitchell, C. H., Lieut.	8th Royal Irish Fusiliers.
Mitchell, W. H.	21st Batt. Royal Fusiliers.
Moberly, A. H., Capt.	21st London Regt. (Wounded.)
Moffat, H. McL., L.-Corpl.	Pals' Batt.
Mollison, W. A.	
Moore, E. L., Lieut.	5th Batt., Leicestershire Regt.
Moore, H. E., Lieut.	Royal Anglesey R.E.
Moore, Laurence A.	North Somerset Yeomanry.
Mootham, Dalmié G.	4th Batt. Royal Fusiliers.
Morgan, E. E.	Glamorgan Yeomanry.
Morgan, G.	5th Welsh Regt.
Morley, J., Major	The Cambridgeshire Regt.
Morphew, Reginald, Lieut.	R.V.V.R.
Morrey, Percy	
Morris,	Royal Welsh Fusiliers.
Morter, S. P., Major	4th West Lancs. R.F.A.
Moscrop, W. N. J., 2nd Lt.	Durham Light Infantry.
Moss, G. J., Corpl.	Royal Engineers.
Mosse, P. G., 2nd Lieut.	13th Batt. Royal Warwick Regt.
Mountford, E. W.	Territorials.
Mozley, W. H., 2nd Lieut.	9th Middlesex Regt.
Muddell, A. R.	2nd P.S. Batt. Royal Fusiliers.
Mullins, G. T.	Artists' Rifles.
Mulready, Paul, 2nd Lieut.	9th Royal N. Lancs.
Mumby, G. H.	
Munckton, V. C. A.	R.F.A. (India.)
Mundle, E. R.	Canadians. (Died of Wounds.)
Munro, Wm.	R.H.A.
Murgatroyd, J. L., 2nd Lt.	R. Anglesey, R.E.
Murison, F., Lance-Corpl.	5th Batt. Gordon Highlanders.
Murray, C. M.	
Murray, J. G. W.	4th Gordons.
Murrell, H. F., Hon. Lieut.	Royal Engineers.
Myer, Val, Adjutant	Royal Engineers.
Myers, J.	East African Mounted Rifles.
Neighbour, S. W., Capt.	Artists' Rifles.
Newbury, C. J.	7th Batt. Royal Fusiliers.
Newell, L. M., Capt.	A.S.C.
Newman, A. C.	21st Batt. Royal Fusiliers.
Newman, B. L.	Canadian Army Service Corps.
Newton, F.	Staff 2nd Div., Cav. and Art.
Newton, F. G.	Artists' Rifles.
Newton, G., 2nd Lieut.	Northumberland Div. Cyclists' Co.
Newton, Percy G.	Royal Engineers.
Newton, W. G., 2nd Lieut.	Artists' Rifles.
Newton-Moss, V., 2nd Lieut.	1st East Kent Regt. (Wounded.)
Nicholls, F.	O.T.C.
Nicholls, W., 2nd Lieut.	Royal Engineers.
Nichols, C. E.	O.T.C.
Nicholson, A. T.	4th Border Regt.
Nightingale, F. B.	Artists' Rifles.
Nimmo, W. W.	Artists' Rifles.
Nobbs, P. E., Capt.	17th Northumberland Fusiliers.
Norquoy, James, Lieut.	11th Batt. Middlesex Regt.
Norris, C.	7th Royal Fusiliers.
Norris, L. A., 2nd Lieut.	Royal Engineers.
Norris, R.	7th Royal Fusiliers.
Norton, J. A.	
Norton, J. S.	9th Royal Scots.
Notley, A. C.	Artists' Rifles.
Nott, G., 2nd Lieut.	3rd Div. N. Mid. Div. Cyclists' Corps.
Oakes, Rycroft	Queen's Westminster Rifles.
Odell, J. F.	R.N.V.R.
Odom, J. H.	Sherwood Foresters.
O'Donoghue, R. J., L.-Corpl.	H.A.C. (Wounded.)
Ogden, F. C., Sapper	Royal Engineers.
Oglesby, R. P., Lieut.	Royal Engineers, Inspector of Works.
O'Hara, J.	Royal Engineers.
Oliver, H., Major	6th Essex Regt.
Oliver, J. R.	Northern Cyclists' Corps.
Oliver, W. G.	6th Cameron Highlanders.
Orbell, I. D. S., 2nd Lieut.	4th Royal Fusiliers. (Wounded.)
Orchard, Alfred	A.S.C.
Orphoot, B. N. H., 2nd Lt.	Royal Engineers.
Oswald, Gilbert, Sub-Lieut.	R.N.V.R.
Oswell, H. Lloyd, Lieut.	1/6th N.S. Regt.

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Overy, C. F., 2nd Lieut.	14th Batt. Royal Fusiliers.
Owen, W. S., Lieut. and Acting Adjutant	3/11th County of London Regt.
Owens, J. P., Corpl.	Northants Yeomanry.
Page, B. Culmer, Major	2nd London Royal Engineers.
Page, G. M.	S. Nottingham Hussars.
Page, H. B.	Fife and Forfar Yeomanry.
Page, James, Lieut.	Territorials.
Page, T. A., Capt.	7th Durham Light Infantry.
Palmer, E. H.	Royal Bucks Hussars.
Palmer, T. R. L., Lieut.	Royal Fusiliers.
Palmer-Jones, W. J.	R.N.V.R. (Anti-Aircraft).
Papworth, A. Wyatt	Artists' Rifles.
Paramor, W.	R.N.A.S.
Parker, A. T., 2nd Lieut.	Royal Engineers.
Parker, E. J. C., Sapper	Royal Engineers.
Parker, T. L.	
Parkin, W. G.	King's Colonial Infantry.
Parkin, W. G.	22nd Batt. Royal Fusiliers.
Parmley, J. H.	16th Batt. Northumberland Fus.
Parsons, E. C.	Royal Engineers.
Parsons, H. R.	5th Batt. Royal Warwicks.
Paterson, A. H. S., Lieut.	
Paterson, Claud	Royal Hampshire Regt.
Paterson, H. F.	H.A.C.
Patrick, W. M.	Royal Engineers.
Paul, Edgar W., Capt.	8th Royal Scots Fusiliers.
Payne, C. G. C., 2nd Lieut.	1st Highland L.I. (Killed.)
Payne, Edwin O.	Durban Light Infantry.
Payne, J. A., Colour-Sergt. Major	Artists' Rifles.
Payne-Wyatt, L. H.	6th Seaforth Highlanders.
Paxton, J., Chief P.O.	R.N.V.R. (Anti-Aircraft).
Peace, T. S. (Jun.), Capt.	R.G.A.
Peake, Frank	H.A.C.
Pearce, J. M., Lieut.	12th Batt. Gloucester Regt.
Pearson, L. G.	R.A.M.C.
Pechell, M. G.	H.A.C.
Peckham, A. N.	Indian Army Reserve of Officers.
Peel, A.	Royal Engineers.
Peele, R. de C., Lieut.	4th Dorset Regt.
Peerless, H. R.	
Pelling, P. C., Capt.	Loyal North Lancs.
Penderel-Brodhurst, B. R., Sergt.	13th County of London Regt.
Perry, R. T., Lieut.	2nd Divl. Train, A.S.C., Canadian.
Petch, E. S.	4th Royal Scots.
Peters, K.	Royal Engineers.
Peters, T. J.	Northumbrian R.A.M.C.
Peto, W. S.	3rd C.O.L. Field Ambulance.
Phelps, L. F.	Royal Engineers.
Philip, Adam	Scottish Horse.
Philips, A. M., Capt.	8th King's Own Yorks L.I.
Phillips, C. H., Sergt.	105th Saskatoon Fus., C.E.F.
Phillips, L. A.	Royal Fusiliers.
Phillips, Rees	R.A.M.C.
Philp, R. W. M. H., Lieut.	Royal Regt. of Artillery.
Phipp, R. A. H., Lieut.	K.O. Royal Lancaster Regt.
Pickford, Leonard H.	Surrey Yeomanry.
Pickles,	6th West Yorks.
Pickmere, Travers	Univ. and Public Schools Corps.
Pidsley, F. M., Sapper	Royal Engineers.
Pigott, R. M., 2nd Lieut.	Royal Engineers.
Pike, C. W., Lieut.	Artists' Rifles.
Pilditch, P. H., 2nd Lieut.	R.F.A.
Pite, Ian Beresford, Lieut.	Royal Engineers.
Pite, Robt. Wm., L.-Corpl.	Royal Engineers. (Wounded.)
Platt, Harry	11th East Lancs.
Poley, A. E.	29th Batt. County of London.
Pollard, E. A., Lieut.	5th Batt. West Yorks Regt.
Pool, S.	Royal Engineers.
Pope, A.	Mounted Infantry.
Potter, Alan	Anti-Aircraft Corps.
Potter, C. H.	6th Batt. Lancs. Fusiliers.
Potts, Robt. W.	9th Royal Scots.
Powell, F. H. N.	Hants Carabineers (Regtl. Scout).
Powell, H. C.	R.N.V.R. (Anti-Aircraft).
Powell, L.	Artists' Rifles.
Pratt, Edwin L.	5th A. and S.H.
Pratt, N. H., 2nd Lieut.	Sherwood Foresters.
Preston, E. C.	Public School Batt. Middlx. Rgt
Price, H. W., 2nd Lieut.	4th Manchester (Wounded.)
Pringle, J. D.	7th Middlesex Regt.
Pritchard, W., 2nd Lieut.	R.F.A.
Probert, J. M.	1st Batt. Monmouth Regt.
Procter, J. C., 2nd Lieut.	13th Gloucester Regt.
Prynne, H. Fellowes	Westminster Dragoons.
Pulford, W. J., 2nd Lieut.	A.S.C.
Pullin, H. C.	Rifle Brigade. (Killed.)
Punter, P. A.	7th Hussars.
Purvis, A. F., 2nd Lieut.	2nd Batt. Scots Guards.
Pywell, W. J.	H.A.C.
Quarter, A.	Scots Greys.
Quick, Norman D.	7th Welsh (Cyclists).
Quirk, W. D.	5th City of London Regt.
Rahbula, Ernest A. R.	1st County of London Yeomanry.
Ramsey, D.	Forfar Highland Cyclists' Batt.
Randall, W. E. R., Jun., Lt.	A.S.C.
Randell, A. J., Major	V.D. 4th Wilts.
Ratcliff, Fred	Sheffield Batt. Yorks and Lancs.
Ravenscroft, M., Lieut.	3rd West Lancs. R.F.A.
Reavell, Geo., Jun., Major	7th Batt. Northumberland Fus.
Reckitt, F. Norman, Capt.	9th Batt. Middlesex Regt.
Reed, W. J.	Naval Flying Corps.
Rees, F. W., Lance-Corpl.	1st Glamorgan R.E.
Rees, J. E., Lance-Corpl.	Royal Engineers.
Reeves, A. Seymour	R.A.M.C.
Reid, A. W., Lieut.	
Reid, David A., Sapper	Lowland Division, R.E.
Reid, J. W. R., 2nd Lieut.	R.G.A.
Reinaecker, V., 2nd Lieut.	Durham Light Infantry.
Revitt, George, Trooper	Northants Yeomanry.
Reynolds, Ernest, Gunner	R.F.A.
Rhind, T. Duncan, Major	5th Royal Scots.
Rhodes, T. H.	R.N.V.R. (Anti-Aircraft).
Rhodes, W. Craven	22nd Batt. Royal Fusiliers.
Richardson, John E.	H.A.C.
Richardson, N. T.	4th King's Shropshire L.I.
Richley, Norman, 2nd Lieut.	22nd Batt. Northumberland Fus.
Rickeard, C. R., Lieut.	R.G.A.
Ridley, B. W., Capt.	7th Batt. 8th Lancs. (Wounded.)
Ridley, G. W., Capt.	4th Royal Sussex Regt.
Ridley, G. W., Lieut.	4th Royal Sussex (Wounded).
Ridsdale, A. C.	Nigeria Land Contingent.
Rignal, F.	Royal Engineers.
Ripley, C. G., 2nd Lieut.	East Anglian A.S.C.
Rix, Alec D.	3rd Norfolk.
Roberts, A. B. Ll., 2nd Lt.	A.S.C.
Roberts, C. H., 2nd Lieut.	1st Batt. York and Lancs. Regt.
Roberts, E. C.	R.A.M.C.
Roberts, G. A., Major	1st Brig. Aust. Force. (Wounded.)
Roberts, H. O.	R.A.M.C.
Roberts, J. B.	Sheffield Batt. Yorks and Lancs.
Roberts, R. M., Major	A.S.C.
Roberts, T. Leonard, Sapper	Royal Engineers.
Roberts, W. J.	R.N.V.R. (Anti-Aircraft).
Robertson, Archie	6th Batt. H.L.I.
Robertson, A. W., Capt.	Essex and Suffolk R.G.A.
Robertson, G. A. K.	Royal Scots.
Robertson, J. D., Sapper	2nd London R.E.
Robertson, John S.	Highland Light Infantry.
Robertson, J. S.	Royal Engineers.
Robertson, R.	London Scots.
Robinson, A. D., 2nd Lieut.	Royal Engineers.
Robinson, A. Vincent, Lieut.	R.F.A.
Robinson, J. C.	Artists' Rifles.
Robinson, J. McC.	Royal Engineers.
Robinson, N. S.	Artists' Rifles.
Rodger, Robt. C.	Bute Mountain Artillery.
Rodger, W. A., 2nd Lieut.	3rd Batt. Welsh Regt.
Roe, G. A. M., Capt.	5th East Surrey.
Roger, Robt. G.	Bute Mountain Artillery.
Rogers, C. W.	Artists' Rifles.
Rogers, W. J.	1st Batt. Monmouth Regt.
Roland, Lawrence	Highland Cyclists' Batt.
Rose, Chas. H.	9th County of London.
Rosenthal, Charles, Lt.-Col.	O.C. 3rd F.A. Brig., Aust.D.
Ross, H. A.	Royal Engineers.
Ross, T. A., Lieut.	Cromarty Garrison Artillery.
Ross, W. A.	R.N.V.R. (Anti-Aircraft Corps).
Routledge, Jas. C.	7th Reserve Batt., R.F.A.
Rowe, G. F.	London Rifle Brigade.
Rowlinson, M.	28th County of London.
Rowntree, C.	1st Anglo-Belgian Field Amb.
Rowse, Anthony	R.F.A.
Royds, A. F., Capt.	Artists' Rifles.
Rubery, T.	Univ. and Public Schools Batt.
Rudd, J.	Yeomanry.
Rudman, Walter	Royal Fusiliers.
Runtz, E. M., Lieut.	5th East Surrey.
Rushworth, T. S., Lieut.	7th City of London.
Russell, A. H.	15th County of London.
Russell, A. L. N.	Public School Batt. Middlx. Rgt.
Russell, J. A., 2nd Lieut.	11th Batt. South Staffs. Rgt.
Rutherford, J. R., Sapper	Northern Division, R.E.
Rutter, W. A.	R.N.V.R. (Anti-Aircraft).
Ryan, B. J., Capt.	Royal Engineers.
Ryan, H. A.	H.A.C. (Wounded.)
Rymill, H. J.	4th Batt. Northants Regt.

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(*Continued from page* 308.)

"Thus we come to the Hyksos Period itself. Much has been written about this period in Egypt, but our real knowledge is small. An unidentified race came in, apparently from Asia, conquered and held Egypt for perhaps a hundred years. But we do not know how far south they held it . . . [at Karma] in the Hyksos period [there have come to light the remains of] a colony of men, not negro, and yet not using Egyptian furniture nor Egyptian burial customs. They razed the buildings of the Egyptians of the Middle Empire; they smashed the statues of Egyptian kings of the Twelfth Dynasty; and they made their graves in the débris of an ancient mud-brick structure. They were apparently a fierce and capable race. Their pottery, manifestly made locally, is the finest and most beautiful ever made in the Nile Valley. . . . Their burial customs are revolting in their barbarity. On a carved bed in the middle of a big circular pit the chief personage lies on his right side with his head east. Under his head is a wooden pillow; between his legs a sword or dagger; beside his feet cowhide sandals and an ostrich-feather fan. At his feet is buried a ram, with ivory knobs on the tips of its horns to prevent goring. Around the bed lie a varying number of bodies, male and female, all contracted on the right side, head east. Among them are the pots and pans, the cosmetic jars, the stools, and other objects. Over the whole is spread a great ox-hide. It is clear they were all buried at once. The men and women round about must have been sacrificed so that their spirits might accompany the chief to the other world. . . . I could not escape the belief that they had been buried alive. Who are these people? There are, it is true, a few negroes among the women; but the chief men are all broad-headed and straight-haired. If they are Egyptians, whence comes the strange pottery and the awful burial custom? It is hoped to submit the bones to Professor Elliot Smith, who will without doubt be able to say whether the men are Egyptians or not. If they are neither Egyptians nor negroes, then there are many possibilities—Arabs, Libyans, a mixed band of adventurers from the north, or even Hyksos. The name of Sheshy, supposed to be a Hyksos king, is found on several of the seal-impressions. But it is not possible at present to reach any safe conclusion on the race of the men of Kerma."

These free quotations from Professor Reisner's report admirably and most lucidly explain the nature of the problems I am asked to solve. There is one possibility, not mentioned by Dr. Reisner, that at once suggests itself, especially when one examines the excellent photographs that illustrate the report. Seeing that this very spot had been occupied by an Egyptian town and fortress nine centuries earlier, and then again later on for several centuries before the time of the people whose identity is under consideration, obviously the first explanation which suggests itself is that we may have to deal with the descendants of the old colony of Pepy's time reinforced with fresh Egyptian blood by new immigrations ranging from the time of Sesostris I. to Amenemhat III. at least.

For the statement that these people were "not using Egyptian furniture nor Egyptian burial customs" is apt to be misleading. The furniture and the burial customs, it is true, are not exactly identical with those of Egypt at any period: but no one who studies the burial customs and funerary equipment of other peoples can hesitate for one moment in deciding that these things and the Egyptian customs and furniture must be assimilated into the same generic group. My meaning will be made clear if we examine the archæological evidence. Burial upon a bed of the type found in these graves was not an Egyptian custom in 1700 B.C.; but it was so at the time when the first Egyptian settlement occurred at Kerma, perhaps a millennium previously; and the legs of the chairs and beds are characteristically Egyptian in design (see Reisner's fig. 20); so are the head-rests and the sandals, and the Egyptian military decoration ("order of the fly"). The exquisite black-topped, red-polished pottery is equally characteristically a proto-Egyptian ware, but carried to a much higher pitch of perfection by eighteen centuries of practice after the Egyptians themselves had been using their most expert craftsmen for other purposes. The barbarous addition to the burial customs of the Egyptians is the well-known negro practice of slaughtering the wives and retainers of the deceased.

In the light of such considerations the hypothesis that should first be tested is that an Egyptian colony, settled in Kerma in proto-Dynastic times, continued to cultivate its original Egyptian cultural heritage, which was modified on the one hand by the taint of negro barbarism and the influence of a succession of later Egyptian immigrants.

I have put forward this tentative explanation of the archæological evidence advisedly, not merely because it naturally suggests itself as the most probable interpretation of the state of affairs found by Dr. Reisner, but also because the anthropological data, so far as I have investigated them, seem to favour this view.

Amongst the human remains there is a considerable number of individuals conforming in every respect to the proto-Egyptian type, such as is found in pre- and proto-Dynastic cemeteries in Upper Egypt. These might well represent the descendants of the original Egyptian colony which was planted in Kerma during the Old Empire. There are also many representatives of that modification of the proto-Egyptian racial type for which I coined the distinctive expression "Middle Nubian" (the people whose culture Dr. Reisner classified as his "C-group"). These were the people who constituted the normal population of Lower Nubia during the time from the Middle Empire until the country was overrun by Egypt in the New Empire: in other words, they were the distinctive inhabitants of Nubia during the time of the Kerma burials; and it would have been very surprising if they had not been well represented. Even in Lower Nubia they exhibited definite traces of some negro admixture; and in this respect the Kerma material agrees with the more northern remains of the same age. But in the Kerma material there is perhaps a greater variety of slightly negroid types than in Lower Nubia—a state of affairs that is not surprising considering that it is nearer the negro domain. In fact, it is remarkable that strongly marked negro traits are so infrequent as they are shown to be in material from such a southerly site.

The most interesting remains that this cemetery has yielded are a minority conforming in every essential respect to the type from Lower Egypt which I illustrated in last year's report. It represents a type of mankind which made itself apparent in Lower Egypt in proto-Dynastic times and spread up the river very gradually, until by the time of the Middle Empire the aristocratic population throughout Egypt was more or less permeated by the influence of admixture with such people. It is in the highest degree unlikely that the effects of such admixture could have become apparent at the Third Cataract before the Middle Empire. That it did so soon afterwards suggests—as, indeed, might have been expected—that the expeditions to the Sudan at that time were commanded by people of this aristocratic type. This is further confirmed by the results of the examination of the human remains, because the people who conformed to the type in question were those buried in the most sumptuous graves and were obviously the most important people interred on this site.

In my final report I shall set forth the data in detail and return to the discussion of these questions. All that I have attempted to do at present is to indicate what seems to me to be the natural explanation of the facts and to state the prima-facie case in support of it.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

War Damage a National Responsibility.

SIR,—The Government Insurance scheme, which has made the individual citizen responsible for war damage, is so manifestly unjust that we may reasonably hope that it will soon be abandoned.

The Army and Navy are maintained for the defence of the citizens and their property; in so far as they fail to give complete protection, the community as a whole should compensate those who suffer damage, whether they be freeholders, leaseholders, householders, or lodgers.

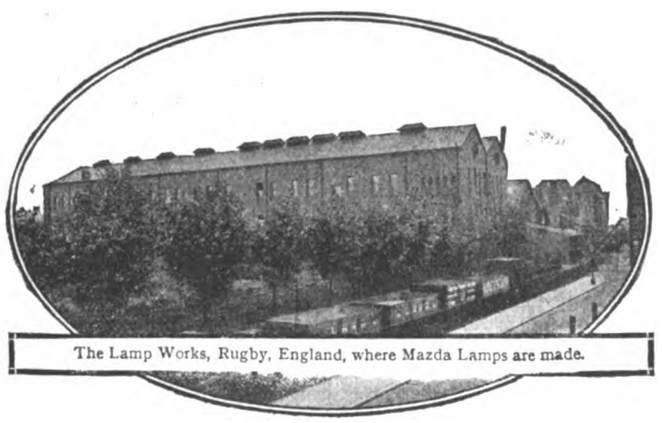
Prior to the Government Insurance scheme, sufferers from air raids and bombardments on the East Coast were, properly, compensated out of national funds, on the same principle that residents of a police district are compensated for damages resulting from failure of the authorities to give complete protection in the case of riots.

The Riot (Damage) Act, 1886 (49 and 50 Vic. c. 38) provides in Section 2 as follows:—

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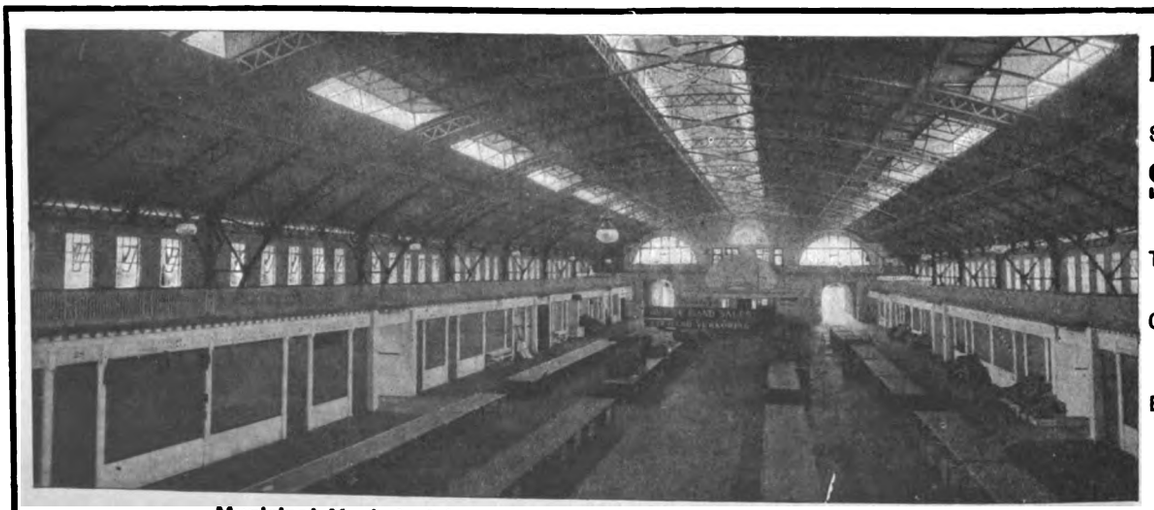
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"Where a house, shop, or building in any police district has been injured or destroyed, or the property therein has been injured, stolen, or destroyed, by any persons riotously and tumultously assembled together, such compensation as hereinafter mentioned shall be paid out of the police rate of such district to any person who has sustained loss by such injury, stealing, or destruction; but in fixing the amount of such compensation regard shall be had to the conduct of the said person, whether as respects the precautions taken by him or as respects his being a party or accessory to such riotous or tumultous assembly, or as regards any provocation offered to the persons assembled or otherwise."

This question of war damage seriously affects the whole community, and if not dealt with in an equitable manner, will add to the necessary evils of the war untold suffering on the part of those citizens who happen to be hit by the enemy in their attack on the nation. Once recognise that war damage is a national responsibility, and it becomes clear that all insurance schemes are out of place, and that an Act should be passed for compensating all citizens injured in the person or estate by the enemy.—We are, yours, &c.,

MARK H. JUDGE & SON,
Architects and Surveyors.

7 Pall Mall, S.W.: October 9, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CHESHIRE.

Altrincham.—Council school, Princess Road.

Birkenhead.—Working men's dwellings (£68,000), the Gilbrook Estate.

Heswall.—SS. Michael and George Church. Mr. R. T. Beckett, A.R.I.B.A., architect, 9 Newgate Street, Chester.

Runcorn.—St. Michael's School: proposed alterations.

CORNWALL.

St. Columb.—Isolation hospital, near Ennisworgey.

DURHAM.

Tyne Dock.—Warehouse. Mr. A. Pollard, architect, Irving House, Westgate Road, Newcastle-on-Tyne.

ESSEX.

Dunmow.—Council school.

Hornchurch.—Four houses, Hornchurch Road, for Mr. R. Living.

GLOUCESTERSHIRE.

Bristol.—Premises, Portishead Dock: extension, for the Anglo-Saxon Petroleum Company.

Gear Store, Portishead Dock, for Messrs. C. J. King & Sons.

HAMPSHIRE.

Southampton.—Isolation hospital, Woolston (£3,200), for the Itchen U.D.C.

LANCASHIRE.

Blackpool.—Three houses, Broughton Avenue, for Mr. E. D. Denis.

Two houses, Kirkham Avenue. Mr. J. E. Dugdale, architect, 20 Birley Street.

Two houses and garage, Park Avenue and Reads Road. Mr. A. Fletcher, builder, Lincoln Road.

House, Watson's Lane, for Mr. W. Kaye.

House, Bispham Road. Mr. J. Fielding, builder, Ashburton Road.

Seven houses, Manor Road, for Mr. W. Coop.

Twelve houses, Portland Road, for Mr. J. Harris.

Two houses, Woburn Road, for Messrs. Wilson & Thornton.

Clitheroe.—Chatburn School: enlargement. Mr. H. Littler, County architect, 6 Ribblesdale Place, Preston.

Darwen.—The Moss Bridge Hospital: proposed extension.

Grange-over-Sands.—Convalescent home (£20,000), for the Workmen's Club Union.

Haydock.—Wesleyan Mission Church, Church Road.

Manchester.—The Empire Laundry, Ashton Old Road: additions.

Walmersley.—Christ Church: alterations.

Warrington.—Church (£3,000). Mr. S. Owen, F.R.I.B.A., architect, Cairo Street Chambers.

LINCOLNSHIRE.

Claypole.—Proposed isolation hospital.

SOMERSET.

Crewkerne.—Viney Bridge Mills: new buildings, for Mr. Hart.

STAFFORDSHIRE.

Grascote.—House, for Mr. G. S. Musson.

Tamworth.—House, Amington Road, Bolehall, for Mr. S. Barlow.

Walsall.—Factory (£6,000). Messrs. Newton & Cheatle, architects, 39 Newhall Street, Birmingham.

SURREY.

Barnes.—No. 1 Percival Road, Mortlake, for Mr. G. A. Gale.

Carshalton.—Pair of houses, Banstead Road, for Mr. H. Collings (of Camden Town).

Richmond.—House, Manor House Estate, Sheen Road, for Messrs. E. Evans & Sons.

Wardrobe Court, Old Palace Yard: additions. Messrs. Brewer, Smith & Brewer, architects, 11 The Green.

East Sheen Council School, Mortlake: additional 200 places.

SUSSEX.

Hastings.—Rates Office (£1,200), for the Corporation.

Haywards Heath.—Cottage Hospital: recreation room for the soldier patients. Messrs. Wheeler & Godman, R.I.B.A., architects, Bank Chambers, Horsham.

Horsham.—Pair of houses, Oakhill Road. Messrs. Hillman & Murrell, builders, Clarence Road.

WARWICKSHIRE.

Bedworth.—Two houses, Newtown Road, for Mr. A. Orton.

Bulkington.—Parish church, Burton Hastings: restoration (£950).

Coventry.—Wesleyan chapel and school, Alderman's Green Road, Alderman's Green.

Business premises, Folly Lane: additions, for Atkinsons, Ltd.

No. 25 Earlsdon Street: alterations, &c., for the Maypole Dairy Company, Ltd.

Factory, Spon Street and Crow Lane: additions, for the Rudge-Whitworth, Ltd.

Foundry, Spon Street: extension, for the Rover Company, Ltd.

Hippodrome, Hales Street: alterations, for the Coventry Hippodrome Company, Ltd.

Hotel, corner of Orwell and Terry Roads, for Messrs. S. Allsopp & Sons, Ltd.

The "Red Horse" Inn, Barras Green, Stoke: additions and alterations, for the Northampton Brewery Company, Ltd.

Seven houses, Swan Lane. Mr. J. Isaac, builder, Foleshill Road.

Two houses and garage, Allesley Old Road. Mr. Ault, builder, Spon Street.

Two houses, St. Coburg's Road, for Mr. T. Dalton.

Offices, Sandy Lane: extensions (£10,000), for the Daimler Company, Ltd.

Meriden.—House, Tile Hill, for Mr. C. E. Hatfield.

Two houses, Tile Hill, for Mr. J. G. Tommy.

WORCESTERSHIRE.

Oldbury.—Mission church, Rood End (£1,900).

YORKSHIRE.

Halifax.—Offices and extension of Works, for the Campbell Gas Engine Company, Ltd. Messrs. Jackson & Fox, architects, 7 Rawson Street.

Milnsbridge.—Workshop, for Mr. T. Taylor.

Outwood.—Three cottages, East Street, Newton Hill, for Messrs. Kilkenny Brothers.

Villa, Aberford Road, for Mr. C. H. Wilson.

Skipton.—"Springfield": additions, &c. Mr. J. Hartley, architect, Swadford Chambers.

York.—Two houses, Avenue Terrace, Clifton, for Mr. C. Morrell.

Offices, Haxby Road: addition, for Messrs. Rowntree & Co., Ltd.

WALES.

Swansea.—House, Clare Street, Morriston, for Mr. Jewell.

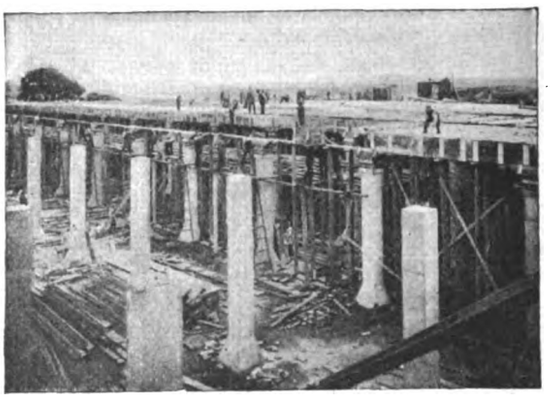
SCOTLAND.

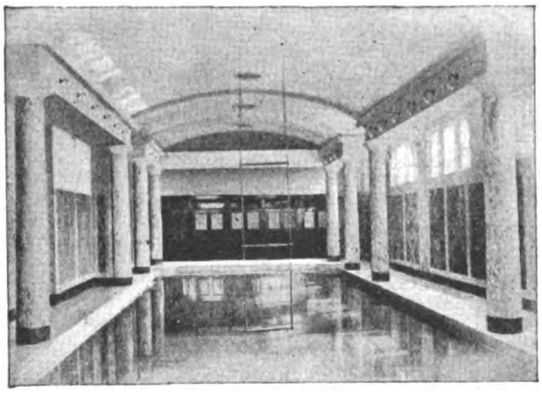
Aberdeen.—Business premises, North Esplanade West: additions and alterations. Mr. G. B. Mitchell, architect, 148 Union Street.

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This reservoir roof is reinforced with B.R.C. Fabric.



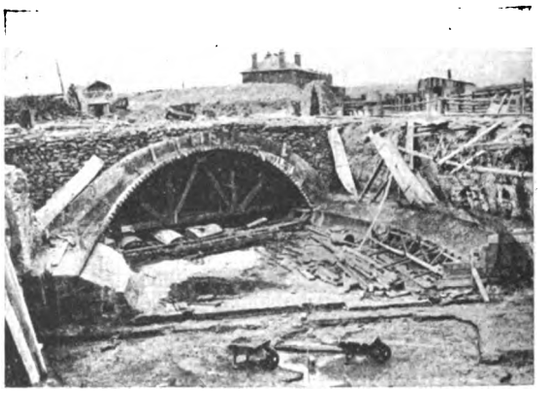


Swimming Bath at Maiden Erlegh for S. B. Joel, Esq. Concrete is made most water-tight by using a reinforcement with cross wires firmly fixed to the main wires to prevent cracking in any direction.

This bath is reinforced with B.R.C. Fabric.

Sewage Culvert for Leeds Corporation. The most efficient reinforcement for this type of work is one that can be easily bent to pass round corners or to suit any required shape, while still maintaining its correct position in the work.

This culvert is reinforced with B.R.C. Fabric.





Stores at Buenos Aires for Messrs. Gath & Chaves. Large floor areas where varied loading may be expected are best reinforced with long wide rolls having cross wires firmly attached to the main wires.

The floors in this building are reinforced with B.R.C. Fabric.

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SCOTLAND—*Aberdeen—continued.*

Six cottages, Bright Place. Messrs. D. & J. R. McMillan, F.R.I.B.A., architects, 105 Crown Street: also

Store, Rose Place, for Messrs. Harrott & Co., Ltd.

Offices, for Terry Saw Mills, Crombie Place. Mr. J. Rust, architect, 224 Union Street.

Arbroath.—Nursery Mill: additional block, for Messrs. D. Corsar & Sons, Ltd.

Clydebank.—Eighteen tenements of houses, for the Dalmuir West of Scotland Estate Company, Ltd. (£30,000).

Denbeath.—U.F. Church (for 500 sittings), £2,500.

Dundee.—Proposed Mills Observatory, Law Hill.

Glasgow.—No. 133 Helen Street, Govan: caretaker's house, office, &c., for the Howden Boiler and Armaments Company, Ltd.

Works, South Street, Whiteinch: boiler-house and grinding-house, for the N.B. Diesel Engine Works, Ltd.

Grangemouth.—Buildings, Station Road: alterations. Messrs. Wilson & Tait, architects, 5 Lumley Street.

Rosyth.—R.C. Church, Schools, and Mission Hall.

Rothes.—Higher grade school (£7,000). Mr. John Wittet, architect, 81 High Street, Elgin.

IRELAND.

Dublin.—Garage and storehouses, 43 Westland Row. Mr. F. W. Higginbotham, architect, 9 Lower Sackville Street; also

Shops, 71 Dame Street.

Kill-o'-the-Grange (*Co. Dublin*).—Convent. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street, Dublin. Mr. J. Kiernan, contractor, Richmond Street, Dublin.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 7,627. Sept. 26, 1914.—John Berry, 193 Lee Lane, Horwich, Lancs. Chimney tops, cowls, or ventilators.

19,816. Sept. 15, 1914.—Dr. Ernst Fues, Bogenstrasse 24, Hanau-on-the-Main, Germany. Sizing and colouring paper and other absorbent material.

19,960. Sept. 19, 1914.—H. J. Kinsman, Derby Street, Cheetham, Manchester. Vacuum jet apparatus for dust and like moving apparatus.

19,995. Sept. 21, 1914.—N. Simpson, Charlecote, Priory Road, Hazelwell, Birmingham. Flushing apparatus.

20,347. March 30, 1915.—John Cochrane, Townhend Wright Works, Glasgow. Window and like fittings.

23,695. Dec. 8, 1914.—Chas. Whalley, 28 Rothsay Road, Blackpool. Mixing machines (particularly adapted for use in the preparation of concrete, tar macadam, and the like).

24,134. Dec. 16, 1914.—C. H. Hardingham, Hope Cottage, Station Road, Harpenden. Rulers.

470. Jan. 12, 1915.—Thos. C. Fawcett, Ltd., and D. L. Fawcett, Whitehouse Engineering Works, Hunslet Place, Leeds. Tunnel driers.

7,012. May 10, 1915.—The Lock Joint Pipe Company, Ampere, Essex, New Jersey, U.S.A. Pipe joints.

10,051. July 9, 1915.—Waygood-Otis, Ltd., and R. F. Carey, Falmouth Road, Great Dover Street, W. Safety appliances for lifts.

7,430. May 18, 1915.—Thos. Sanders, of Thos. Sanders, Ltd., St. Mary Street, Ladywood, Birmingham. Casement and like stays and fasteners.

9,818. July 6, 1915.—J. E. Barraclough, 102 King Street, Dukinfield, Cheshire. Saddles or protection plates of domestic or like ovens.

Any of the above specifications may be obtained from J. D. Roots & Co.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 20,983. Oct. 15, 1914.—Sewage Distributors. S. H. Adams, A.M.I.C.E., The White House, Fulford, York.—This invention relates to revolving sewage distributors. A shallow air lock is employed which is placed at a higher level than hitherto, so that the entire distributor body is above the ground line instead of, as formerly, about one-half its depth below ground line. The revolving body revolves around the central supply column, friction wheels being attached suitably to the body, and so placed that they travel around a turned bearing surface on the column. The liquid which is discharged into the central body from a suitable source of supply is discharged from it into the spray arms either direct or (if the discharge is to be intermittent) through automatic syphons. Fig. 1 shows in plan, and fig. 2 in sectional elevation, the general construction of this distributor; a is the connection for the supply pipe and base for the hollow central column b, up which liquid rises and from which it is discharged through slots c c into the revolving body d, which is connected to the ball race m at the upper extremity of the column by means of the stay rods l l. At n n are steel ropes which support the spray

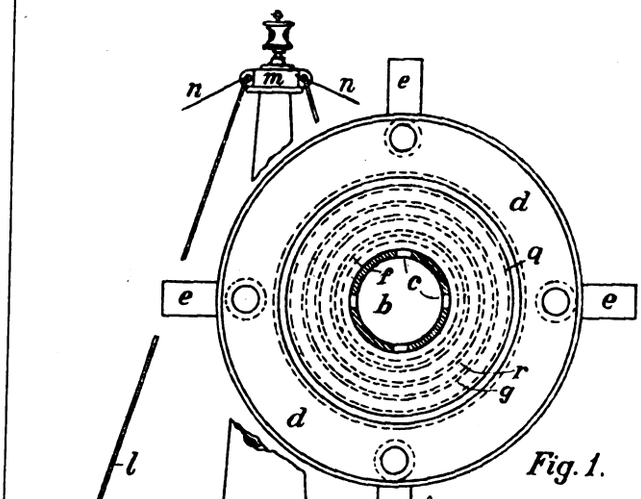


Fig. 1.

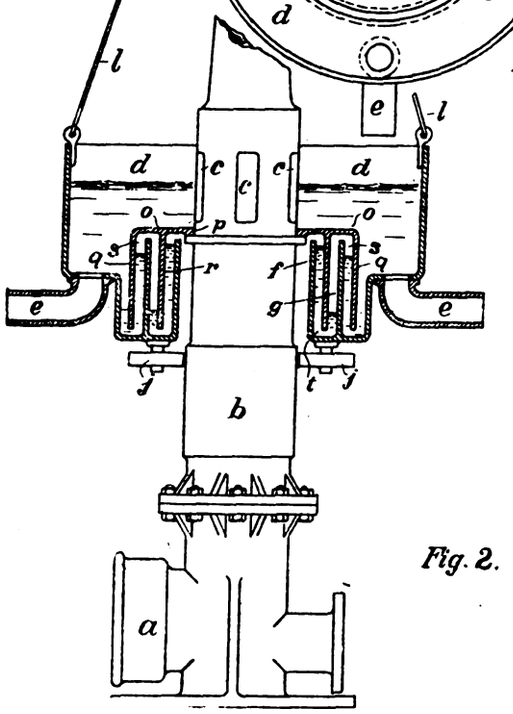


Fig. 2.

arms (not shown), these spray arms being suitably connected to the revolving body d at e e. At o is a dome which has a circular opening in its centre large enough to allow the central column to pass through; this dome rests upon a collar p upon the column. The dome o has an annular division r between which and the surrounding frame q an annular space s is formed. The revolving body d is provided with a corresponding annular receptacle t formed between the annular divisions g and f. In operation this distributor will be supplied from any source, liquid will enter the body d, air will be enclosed in the air lock s, and its pressure will be such that the liquid in d will rise to the height required. The liquid will be discharged through the spray arms and cause the distributor to revolve and to spray the liquid upon the filter bed in the centre of which it is placed. It will be seen that the construction of this air lock coupling or gland is such that it is entirely above the surface. The revolving body is provided with idle wheels j j, which travel around the central column and keep the body in position.—Sept. 1, 1915.

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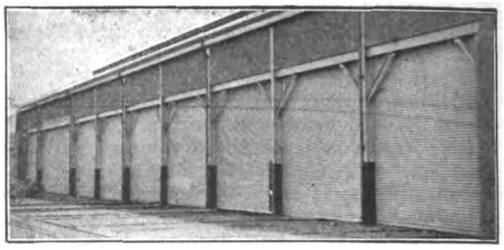
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, October 25.

University Extension Lecture IV. on "The Early Renaissance in Italy," at Victoria and Albert Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Thursday, October 28.

University Extension Lecture V. on "Asiatic Architecture (B.C. 4000-B.C. 333)," at the British Museum, by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

CIVIC EVOLUTION.

In the scientific study of town-planning, which must of necessity be antecedent to the development of the art of civic design, there must be included an investigation of the manner in which cities have in the past displayed the force of evolution, of the tendencies of the present day toward further definite lines of development. Civic design is not something which can be done from above on general principles easily laid down, which can be learned in one place and imitated in another. It is the development of a local life or regional character—a civic spirit, a unique individuality, capable, of course, of growth and expansion, of improvement and development in many ways, of profiting too by the example and criticism of others, yet always upon its own way and upon its own foundation. Still less is civic design a matter of designing pretty patterns which shall have symmetry of disposition for their chief characteristic. Axial planning and symmetrical disposition may be advantageous for certain classes of individual buildings, though even here the production of plans with these governing elements is often but a clever compulsion of divergent functions into convergent paths. It is scarcely going too far to say that the selection by assessors in open competitions, such as Ruislip-Northwood and Bradford, of plans in which symmetrical disposition is prominent, must be inherently wrong without further consideration. We stand in view of appalling mistakes in town-planning if our civic designers start from the basis of symmetry, forgetful of the lessons of civic evolution.

Ample food for thought and for consideration should be provided by our modern town-planners in the evolution, for example, of such cities as Salisbury and Edinburgh, which in their mediæval town-planning and housing closely anticipated that of our garden-cities. Salisbury, when its bishop migrated from Old Sarum in 1220, was laid out as a veritable garden-city, curiously like Letchworth or Hampstead garden suburb to day, so far as its homes were concerned. Indeed, their architects will be the first to recognise that Salisbury had advantages of greater garden space, of streams carried through the streets. To-day it is a mass of crowded courts and gardenless slums, arisen from the deterioration of one old garden-home after another. Old Edinburgh, with its old agricultural centre and market-place, its open areas with houses grouped around, has become the most squalid conglomeration, the most over-crowded area in the old world, scarcely to be rivalled by the worst quarters of New York and Chicago in the new.

The study of population-maps of many centres in England reveals another aspect of civic evolution. This aspect is well set forth by Professor Patrick Geddes in his recently issued volume,* which has suggested our subject. He shows by a population-map of Greater London, somewhat over-reduced for detailed examination, how this octopus of London—polypus, rather—is something exceedingly curious, a vast irregular growth without previous parallel in the world of life—devoid of all axial lines and symmetry, be it noted, perhaps likest to the spreadings of a great coral reef. Onward it grows, thinly at first, the pale tints spreading further and faster than the others, but the deeper tints of thicker population at every point speedily following on. The divisions between innumerable constituent villages and minor boroughs are here swallowed up by a vast new unity, long ago well described as "a province covered with houses." Indeed, a house province spreading over, absorbing a great part of South-East England, a polypus extending its tentacles even to the coast.

Elsewhere we have what Professor Geddes calls "Lancaston," the civic evolution of Lancashire towns agglomerating into a city-region of which Liverpool is the seaport and Manchester the market; while Oldham and the many other factory towns, more accurately called "factory districts," are the workshops. Another "con-urbation"—as our author designates the agglomeration of formerly separate towns and villages—is to be seen on a population-map of the West Riding, another around the steel and coal industry of Sheffield, or a newly-named South Riding. Birmingham forms the nucleus of a fourth con-urbation, or "Midlandton," Cardiff that of a (South) Waleston. Further north we have the coalfield leading to the con-urbation around the Tyne-Wear-Tees.

These con-urbations, all of them, except Greater London, grouped around or in proximity to a coalfield present already social problems, particularly that of their water-supply, which seem to necessitate for each a centralised and unified form of local government that shall control the hygienic and sanitary management of a group or con-urbation of a number of cities, townships, and villages which now are fast tending to become, like the constituent boroughs and parishes of Greater London, one great city. This direction of civic evolution is one of the most important facts with which the town-planning of the immediate future will have to deal. Even in the United States, with all its wealth of wide lands, we see the process of con-urbation in force, of which Greater New York, Chicago, and Pittsburgh are examples.

We have noted that our English con-urbations have been influenced in their locale by the proximity of a coalfield—that is, a source of energy for manufacture. But this agglomeration of teeming myriads, making ever-increasing demands upon its energy-source, must result in a more and more rapid approach to a sooner or later exhaustion of the mines on which the industrial life of these con-urbations depend.

It is interesting to compare the prospect of the newest arrived competition with these depreciating energy-sources to be observed in the application of naturally supplied water-power to the generation of electricity now in progress in Norway, Sweden, Finland and Switzerland. Professor Geddes sketches a picture of the coming competition of mountain waterfalls as sources of power with the present dominant coalfields.

The evolution of cities is as regards intention closely connected with, indeed is a branch of, sociology, hence it is not surprising to find that our author runs somewhat away from his title rôle to discuss social problems, and those who desire a text-book for "practi-

* "Cities in Evolution." An Introduction to the Town-Planning Movement and to the Study of Civics. By Patrick Geddes, Member and Hon. Librarian of the Town Planning Institute; Director of the Cities and Town Planning Exhibition. With 59 illustrations. (London: Williams & Norgate. 7s. 6d. net.)

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cal" use may feel disappointed in Professor Geddes' new book, but those who realise the connection of town-planning and social economics will follow him with pleasure even if not with entire agreement, and athough they may recognise how easily the discussion of social problems lends itself to the outpouring of high-flown sentimentalism without much substratum of productive remedies.

There is one aspect of the condition of what it is the fashion to call "labour" which appears to have escaped, if not the notice, at least the exposition of writers and talkers on social problems. This is the fact that whatever the amount in coin of the payment of the unskilled worker, it is always the equivalent of the same amount of bread and meat, save for those very short periods in which the never ending struggle of labour for better pay has for the moment achieved success. It does not matter whether the pay be the Scriptural penny a day or the modern desideratum of a shilling an hour, the unskilled weekly wage-earner is never any better off in normal times. At present, under war conditions, wages are inflated in many cases beyond the capability of bread and meat, even at present enhanced prices, to get level with them. As we lately heard an unskilled labourer, speaking under the influence of "in vino veritas," very truly express it, "we don't get our chance once in ten thousand years, but now we've got it."

By right direction of civic evolution, town-planning, civic design, it is possible for the community at large to pay the unskilled labourer a more adequate wage than the coin he receives, in the shape of better, happier, more healthy conditions of living. And it is worth while for the community to do it, as our Levers, Cadburys and Rowntrees have proved. The basic idea of trade unionism, to get more coin for a given output of work, is unsound economically. Coin after all is merely a token of the value of work done, and if a man gets a silver shilling for a copper pennyworth of work, he will quickly find that he can buy no more bread and meat for his shilling than he could for his penny. But if besides his penny he lives in a Port Sunlight or a Bournville, he is receiving better remuneration for work done. Hence civic evolution rightly directed is the best method of payment for unskilled labourers, the best shape in which the community can pay him a living wage.

NOTES AND COMMENTS.

We this week complete our Roll of Honour of those members of the architectural profession who have given themselves for the military or naval services of the Crown. The difficulties of preparing an accurate list would scarcely be credited by anyone who has not attempted it, and we do not claim that ours is perfect, although we have endeavoured to approach as near as possible to correctness. We shall be pleased to make in subsequent issues any additions or corrections that our readers may send us properly authenticated.

Of the internal and domestic questions connected with the war, that of housing is one of the most pressing, if not one of the most difficult. It is also one in which the incapacity of the Government has been particularly evident. In the first place, the Government have done all in their power to discourage building in general and the prosecution of housing schemes by local authorities in particular. Before the war began there was a general condition of shortage in the supply of houses for the weekly wage-earners, or working-classes as it is the incorrect fashion to term them. We need not now go into the reasons that had made the erection of small houses unattractive to private enterprise. It is sufficient to say that it had undoubtedly become unattractive. Schemes were in hand all over the country for municipal and other public provision of the necessary housing accommodation. These, it is scarcely too much to say, have been crushed by the Government. They did not foresee, what should be evident to the least intelligent, that the manufacturing activities of a great war would cause a boom in labour, that there would be high wages in the pockets of the "working-classes," that those who used to take lodgers would now want the whole house to themselves, that the lodgers would also have the same desire, and that so the already existing shortage would be intensified, with the natural result that those who have houses to let accept the tenants who are prepared to pay the highest rent. The question is further accentuated in the munition areas by the abnormal local and temporary increase of the population. Now there is an outcry from the members for working-class constituencies such as Poplar, Dartford and Glasgow (Blackfriars) against the wickedness of the landlords in seeking to share in the rise of prices that has been initiated by the butcher, the baker, and the grocer. The higher prices that the retailer of food has to pay for his stock are paralleled by the higher rates of interest that the landlord of small house property, which is usually mortgaged, has to pay and the increased cost of repairs, which in such property is a large proportion of the rack rent. We are glad to note that in the House of Commons discussion last week Mr. M'Kinnon Wood (Secretary for Scotland), replying to the members for Poplar, Dartford, and Glasgow (Blackfriars), recognised these facts when he said:—

"Undoubtedly the landlord, if he was a person with a very small financial margin, was in a position of difficulty in many cases at the present moment. That was so in Glasgow. He might have to pay an extra half per cent. interest on his bond besides the interest, which had been raised 1 per cent. within the last few years. The cost of repairs was also higher. He thought the House would agree that the matter was one of some complexity. Therefore he proposed to appoint a small and impartial committee to inquire into the matter promptly and rapidly."

We gather from the speech of Dr. Addison that the Government have now realised the folly of their restrictive action on housing provision, no doubt because the Ministry of Munitions finds itself up against a brick wall when it is confronted with an absolute lack of accommodation for its munition works and a cast-iron rule that no houses must be built for workers. There are two things of which the provision must go on, war or no war,—food and shelter, and the attempt of the Government to stop building is simply one more instance of their stupidity.

Dr. Addison said that the Ministry of Munitions were satisfied that the raising of house rents was a contributing cause of labour unrest. They were doing their best to deal with the most pressing cases in munition areas. They had instructed the Ministry's officers throughout the country to collect complaints. When they had a clear vision of what those complaints actually amounted to, they would be better able to determine what was the right thing to do. The Ministry were not lacking in zeal to deal with the matter as far as they were able. As far as possible new munition factories were put up in districts where there was a population able to supply most of the unskilled labour required without additional housing accommodation. With the aid of the Local Government Board the military had conducted an inquiry in every area where there was a munition extension. In districts where there was housing congestion apart from munition work there was more justification for providing additional permanent houses than in districts where it was not likely that after the war there would be any pressure on the existing accommodation. In some places therefore temporary accommodation would suffice. In some places the military were requisitioning existing institutions and fitting them up for workmen's dwellings. Where there was a pressure already on accommodation schemes had been arranged for the provision of a considerable number of houses by the local authorities. The Ministry had arrived at an arrangement with the local authorities under which the former would make a contribution to the cost over and above pre-war prices, and

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the local authorities would obtain loans in the ordinary way. Where temporary accommodation was provided the Ministry were directly responsible for its provision. They had appointed a Costs Account Department to see that the accounts were checked and that the Ministry got what they paid for. In Coventry provision was made for 600 houses. In the case of Glasgow there was one scheme which had been adopted in connection with one of the large firms whereby 600 to 700 additional houses would be provided. A scheme for Mossend provided for from 100 to 150 houses.

A striking illustration of the present shortage of working-class dwellings is afforded by figures quoted by Alderman Harford, deputy-chairman of the Housing Committee of the Liverpool Corporation, who at the last meeting of the committee for the present municipal year stated that of the number of dwellings under the control of the committee at the present time—viz. 2,792 dwellings—there were only ten vacant, though the Director had no fewer than 400 applications.

Some further figures, given at the same meeting, show light on the financial operations of municipal housing. According to a statement prepared by the city treasurer up to the end of December 1914 the total cost of demolition, i.e. work done under the Liverpool Sanitary Amendment Act, 1864, was £306,803 9*s*. 5*d*., whereas the amount expended on housing under the Housing of the Working Classes Acts was £878,858 0*s*. 8*d*. The total cost of housing and demolition, therefore, amounted to £1,185,661 10*s*. 1*d*., of which sum there was a balance still owing of £746,052 0*s*. 11*d*. The interest and sinking fund on that sum amounted to £46,166 3*s*. 4*d*. per annum. Deducting therefrom the net receipts, which amounted to £12,187 7*s*. 10*d*., there remained a balance of £33,978 15*s*. 6*d*., which was the present net charge per annum for the whole of the work, and was equivalent approximately to 2¾*d*. in the £ on the rates.

With regard to the operation of the sinking fund, it was of interest to note that in about ten years' time the capital expenditure on Victoria Square and Juvenal Street, comprising 372 dwellings, opened in 1885 and 1891 respectively, amounting to £138,320, would have been repaid. The Corporation would then enjoy the unencumbered possession of the property, which yielded a net revenue of about £2,000 per annum. That income would, in process of time, repay to the Corporation its outlay in the cost and maintenance of those dwellings, a point of overwhelming interest to the housing reformer.

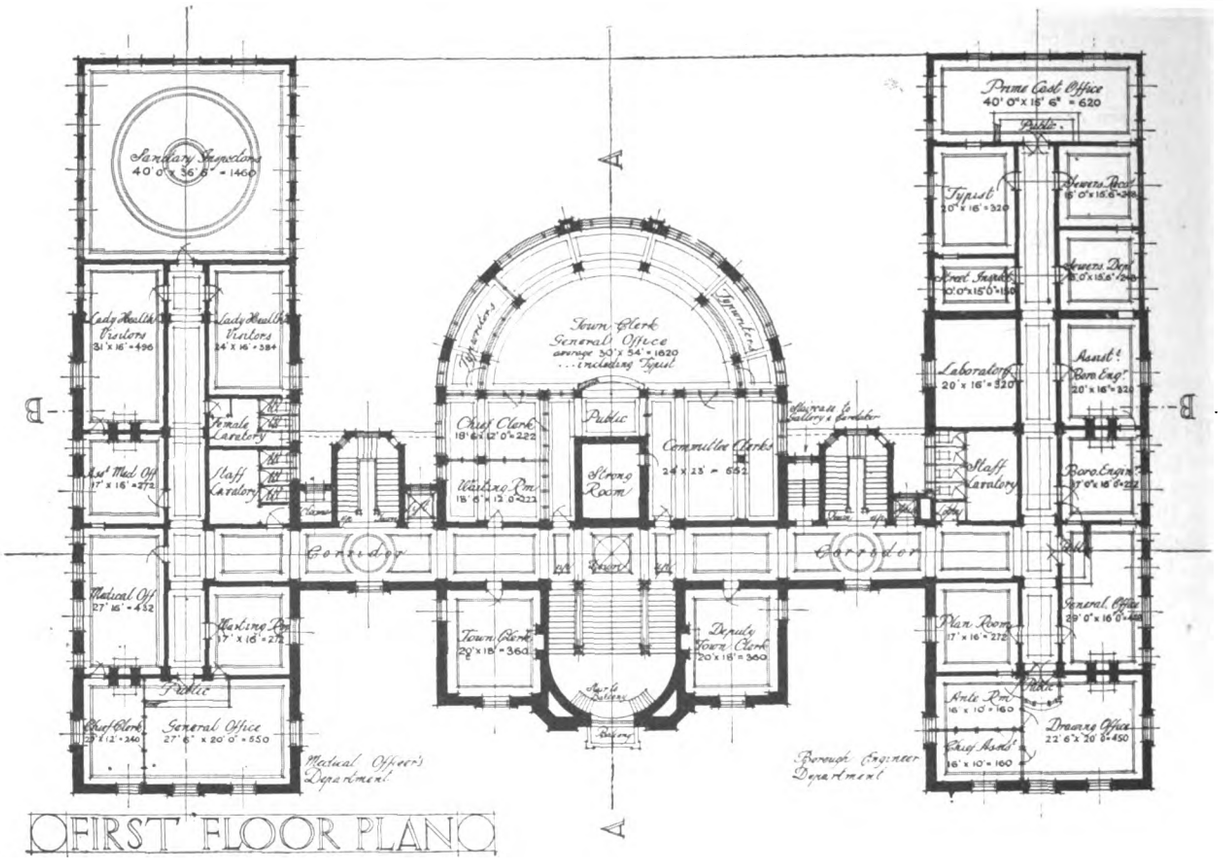
The Shropshire Archæological Society has done wisely to contemplate the suspension of its activities during the war, the final decision being left to the committees, and is no doubt satisfied to do so from the excellent results achieved at Uriconium during the past season, as described by Mr. Bushe-Fox and reported in the "Shrewsbury Chronicle." Last summer, he said, they probably did more work than in any one of the three years, principally owing to the large amount of money they received from the Birmingham fund. They uncovered about two acres, he supposed, altogether, and the work was extremely interesting. There were the remains of many houses super-imposed one upon another—houses of different periods, the earlier ones of wattle and daub, very similar to the half-timbered houses so common in Shropshire to-day. The roofs appeared to have been made of either the Roman roofing tiles or slabs of stone. Practically none of the first buildings remained, owing to their fragile character; probably most of them were burnt down, judging by the indications. They dated between 75-120 A.D. There were found three long houses which lasted until the middle of the second century, when they were incorporated into one large house. These houses consisted of many rooms, and there were two courtyards and long corridors into which the rooms opened. Several of the rooms were heated with hot air. Three of them had fine mosaic pavements in different colours, but these unfortunately had been broken up. One room had a good mosaic floor, and there was a small bath to the south of it, consisting of an entrance, a tepid room, a hot room, and a place which might have been a sweating room, or might have contained a hot-water tank. There were also two octagon (?) rooms attached to it which were apparently used as cold baths.

One of the most interesting points about this building was the drainage system. A large water main appeared to have run down the street, and from this at intervals channels ran through the different houses. The mouths of these channels were raised seven or eight inches above the level of the water main that ran down the road. It seemed probable the water in the main only rose in ordinary circumstances to four or five inches, but there were sluice gates at intervals, and when the water rose and was diverted through the house it flushed out the drains and carried everything away and discharged into the Severn. As far as they knew, that was the first time those sluice gates had been discovered in a Roman town. This large house appeared to have lasted until the end of the second century or the beginning of the third, when it was very considerably altered. Several of the rooms in the centre were swept away, and the two courtyards, and it was converted into the common type of Roman house in Britain, consisting of a large courtyard, surrounded by a corridor, into which opened a series of rooms. The bath-house was entirely destroyed, and a new wing was built on the house at that end, and at the west end a verandah was added, with a floor of red tesserae. At the back of this building was another large structure, which, he was sorry to say, they could not completely excavate, as it extended underneath the modern road. It consisted of two walls, enclosing a space of about 180 feet long and 150 broad. No building of that description had been met with in any Roman town, and it was not easy to say what was its original use. The probable solution seemed to be that between those two walls were seats, and amusements, such as bull baiting, were carried on in the space enclosed by the walls.

During the three years of excavation they had found a very large number of small objects—the greater number, of course, pottery—some very interesting. Some few dated back as early as 60 A.D. The coins also bore out an early date for the occupation of the town. They had a large number of the Emperor Claudius and quite a number of other early coins. These certainly pointed to an early occupation of the city, and the tombstones in the Museum showed that the place was occupied by the 14th Legion, but up to now they had found no trace of that camp, so it was a curious point, finding so many early coins and so very little of the pottery or brooches that belonged to the same date. The only solution seemed to be that they were on the outskirts of the Legionary Camp, and those coins and the other things they had found were dropped by the inhabitants outside the boundaries of that fortified camp. The last coins to be found were those of Theodosius and Arcadius, 393. It appeared pretty certain the town was abandoned or destroyed about that period; but up to the present they had found no evidence that the end of the town was a massacre or that it was burnt. They had found one or two isolated bones, but nothing more than one would expect to find in turning over the amount of soil they had done, and there was absolutely no evidence that the last houses were destroyed by fire. They had some hundreds of brooches—some very interesting, some finely enamelled. There were several rings, two finely cut little cameos, a very fine class of knife carved in bone, &c.

The increased price of money—or credit—has affected building societies, but these have been able in most cases to make a very simple adjustment which is generally recognised as correct. For example, where the investor received 3 or 3¼ per cent. he now gets 4 and 4¼ per cent.; where a borrower was required to pay 4 and 4½ per

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STEPNEY MUNICIPAL BUILDINGS.

cent. he has to pay 4½ and 5 per cent., the latter by new borrowers. The arrangements in this respect vary with different societies. By the rules of some, mortgages have to be called in before the rate of interest can be raised; in other cases it is sufficient for the society to give notice of the increase; in others, there is no power to call in or to increase the rate of interest. Instead of calling in mortgages, however, societies have appealed to the sweet reasonableness of borrowers and endeavoured, generally with success, to effect an agreement as to the higher rate, while, where new borrowers are concerned, the highest rate fixed by the society has to be paid. Also, investors of small sums who make the fullest use of a society's facilities in the matter of withdrawals, are, on their part, differentiated from those who pay in large amounts as paid-up shares or otherwise, say, £250, £500, or £1,000, for long periods, the latter receiving a higher rate of interest or participation in profits. Accordingly, for the member who invests a substantial sum for a term of years the advantages offered compete with securities which are subject to market fluctuations, and which necessitate payment for brokerage on sale or transference. Moreover, the readiness with which money may be drawn out at face value, the payment of income tax (by the larger societies), and the facilities given for small periodical payments, are all cited as additional advantages to the small investor. Even "home safes" for the accumulation of odd coppers are supplied as a further incentive to thrift.

Mr. Gillespie, architect for the building, has prepared a design for a stained-glass window for the principal staircase leading to the Council Chamber in the new Municipal Chambers at Stirling. The design represents King Alexander II. presenting to the Provost of Stirling the Royal Charter of August 18, 1226, by which he granted the burgesses a weekly market, a guild, and other privileges. The design also bears the Royal Arms, the arms of the burgh, and those of Stirling Guildry and the Seven Incorporated Trades. The cost of £250 is being met by certain subscribers.

ILLUSTRATIONS.

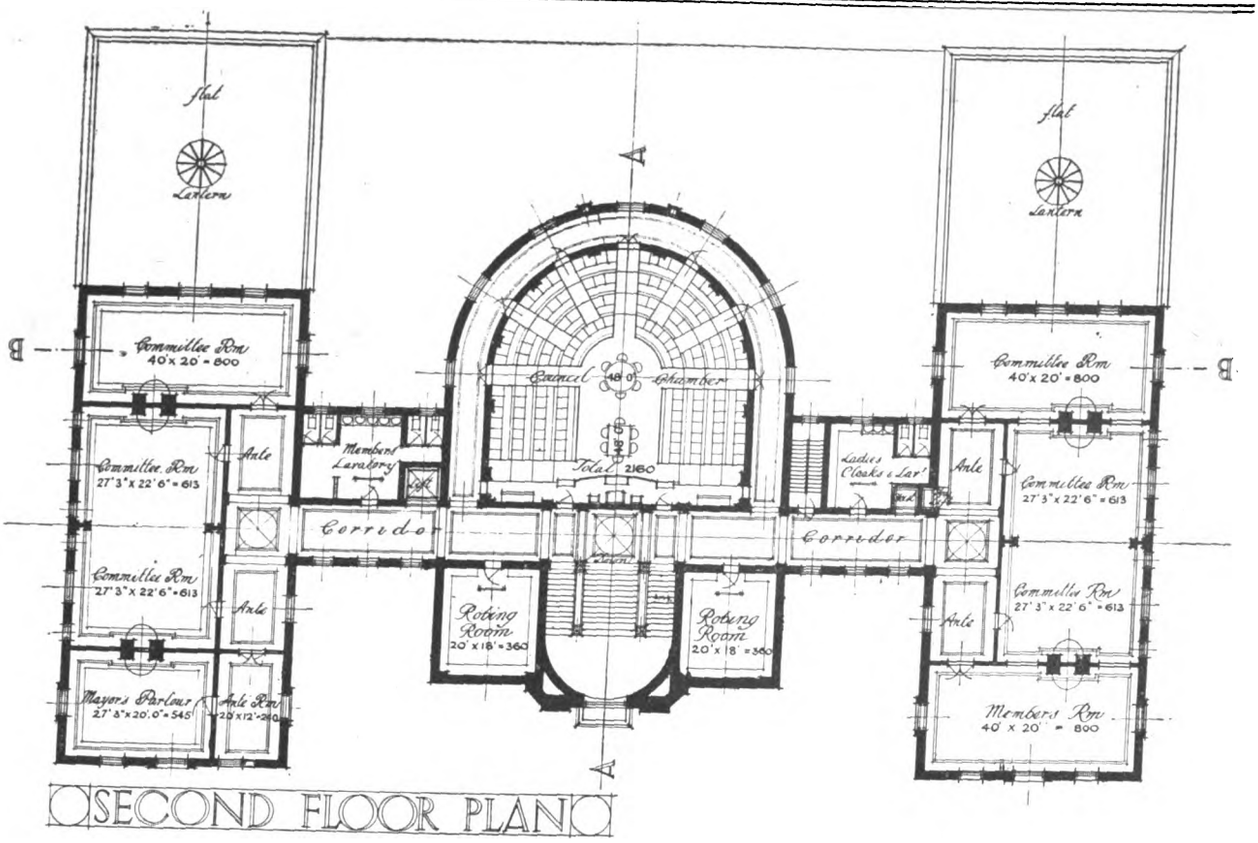
"WHINBURN," KEIGHLEY, YORKSHIRE.

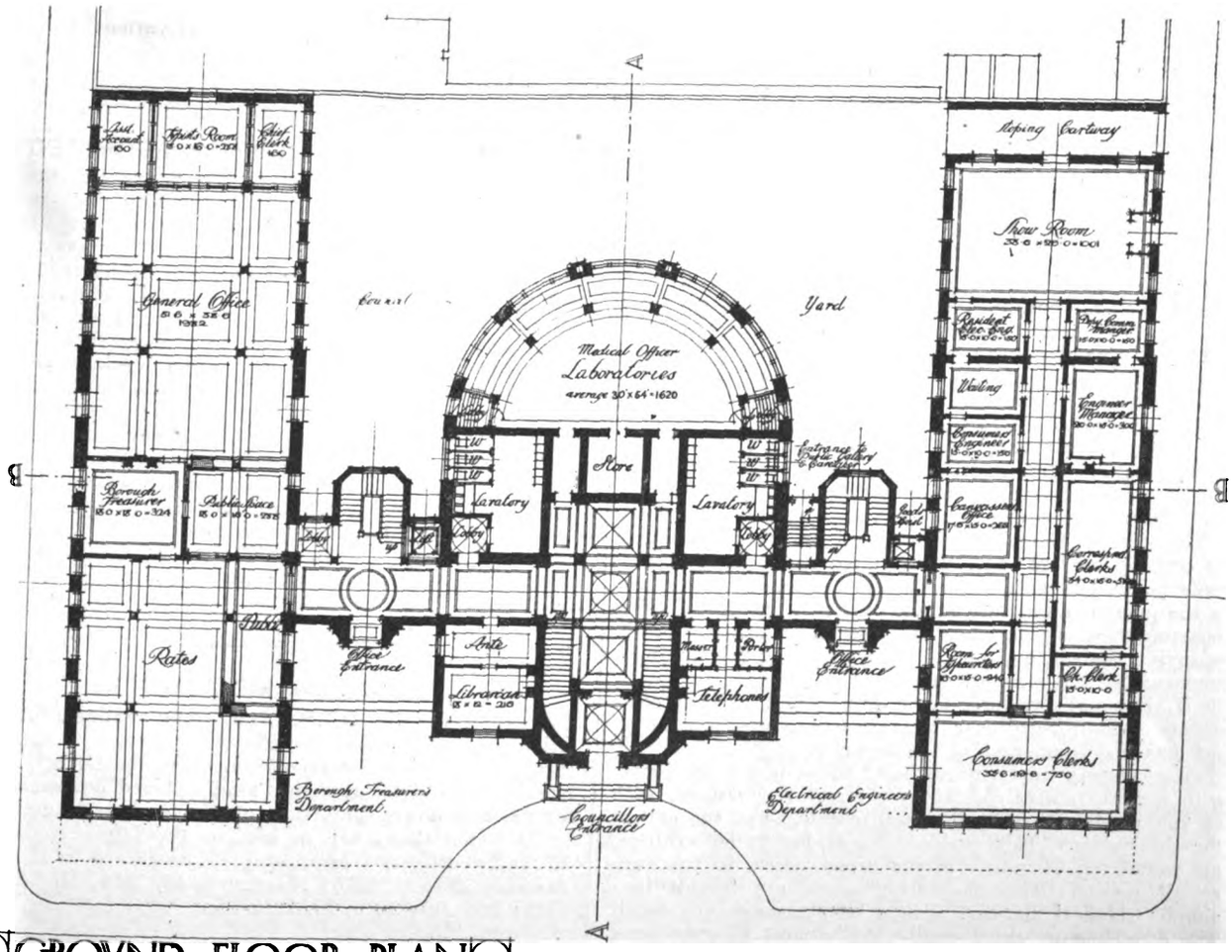
The extensive alterations and additions carried out to "Whinburn," Keighley, were designed by Messrs. John W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., in consultation with Messrs. Moore & Crabtree, of Keighley, who assisted in superintending the erection of the work. The whole of the external walling is of local stone, and the great hall, as well as all internal window arches and many of the fireplaces, are also in the same material. During the building operations the original sixteenth-century panelling and fireplace from one of the rooms of East Riddlesden Hall, near Keighley, were fortunately secured from a London dealer and re-used in the drawing-room at "Whinburn," the ceiling of which was copied from the old ceiling of the room at Riddlesden, from whence the panelling was taken. Another very beautiful ceiling at Riddlesden was also reproduced for the drawing-room. The whole of the new joinery, including the flooring, ceiling joists, and the open roof to the hall, is of exceptionally fine old English oak, entirely hand-worked, and was supplied and carried out by Mr. C. Kerridge, jun., of Sturton Street, Cambridge, who bought the timber specially for this work from old buildings to be demolished. The general contractors were Messrs. Tom Moore & Son, of Keighley. Messrs. George Jackson & Sons were responsible for the special plaster work. The house is fitted with a system of vacuum-cleaning by the British Vacuum Cleaning Company, driven by power from the electric light plant already installed before the alterations. The drawing herewith reproduced was hung at the Royal Academy Exhibition this year.

NO. 1 CAMPDEN HILL, W.

The house stands on the south side of the newly aligned roadway of Campden Hill, in a considerable garden. It is roofed with Westmoreland and green slates. Two-inch "D" bright cherry red and 2-inch "DX" bright rich dark red hand-made coarse sand-faced facings were used for quoins and arches, and special moulded bricks to match. For the general facings, the same firm's 2-inch "DX," "DXX." and "DXXX," including bright rich dark red, dark plum-red, and dark plum colour heavily flashed with deep browns, blue-blacks, &c., were used. The bricks were made at the Wokingham Works (S.E. & C.R. and L. & S.W.R.) of Messrs. Thomas Lawrence & Sons.

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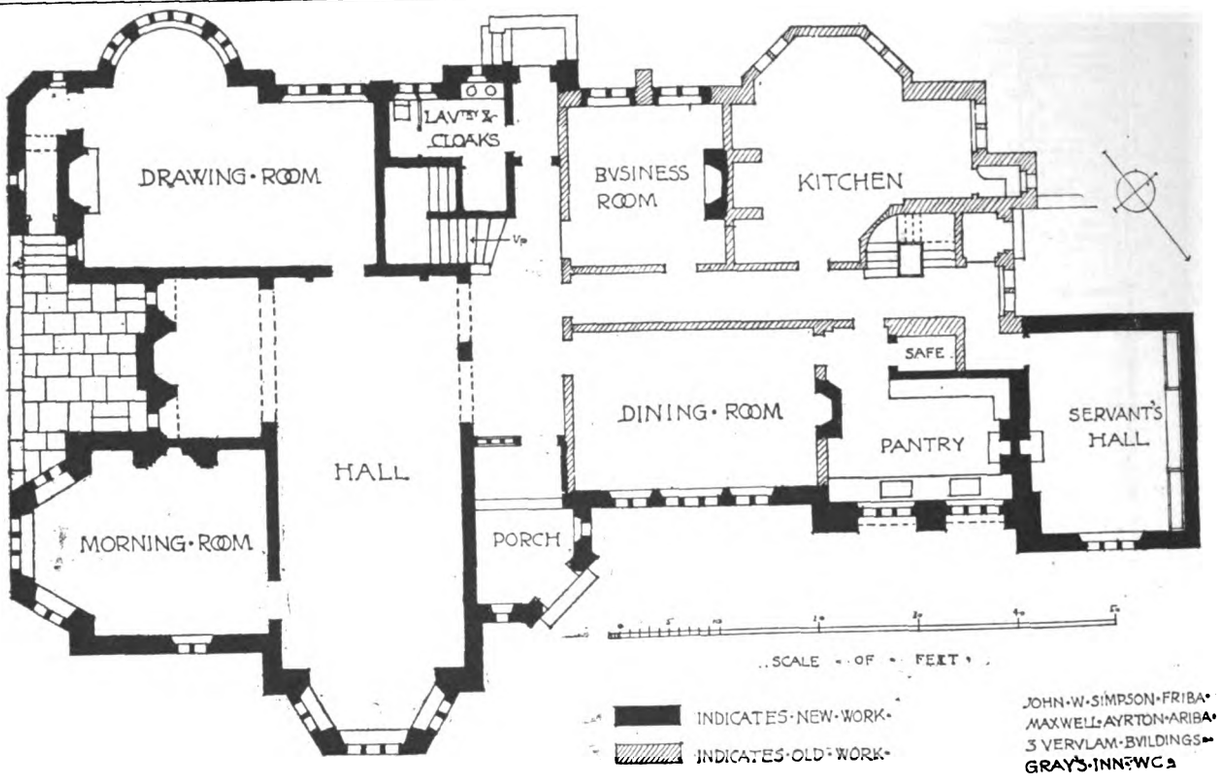
STEPNEY MUNICIPAL BUILDINGS.

The fall of the ground from north to south is considerable, and the house is arranged with a raised house terrace between the two wings, and a garden terrace.

A garage and cottage are placed at a little distance from the dwelling-house on the east side.

The general conditions and surroundings are those of a

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"WHINBURN," KEIGHLEY, YORKS.—PLAN.

country rather than a town house. Mr. Edward Warren, F.S.A., F.R.I.B.A., was the architect.

The general contractors are Messrs. Holloway Brothers (London), Ltd., and the heating engineers are Messrs. C. P. Kinnell & Co., Ltd.

STEPNEY MUNICIPAL BUILDINGS.

The general idea of the scheme illustrated was to take advantage of the ample site provided to design a building on the pavilion type which should have no areas, and provide opportunities for the grouping of the building in masses, thus gaining the best architectural effect which the nature of the buildings and the importance of the site demands. The most important feature of the scheme—viz., the Council Chamber—was therefore placed in the centre on an upper floor, where it would form a dominating feature of the design. On either side are arranged the two blocks which, being connected to the centre only by the necessary corridor and staircases, are provided with ample light on all sides and cross-ventilation. These blocks are treated in a simple and severe character to support, but not detract from, the main feature.

The Council Chamber being placed on the upper floor, the committee-rooms, &c., were placed on either side, the whole being self-contained and complete and approached by the principal staircase in the centre of the front. The departments were grouped on the lower floors generally, each occupying the whole of one of the blocks, and this arrangement enabled the various rooms to be grouped together with the minimum of corridor. The lavatories and service accommodation are provided near the staircases in close proximity, but detached from, each of the departments.

The lavatory treatment of the Chamber is that of a room with a semi-circular end lit by a circular clerestory, with an Ionic order carrying the main cornices and the gallery for the public. This enabled a corridor to be arranged all round the Chamber, giving direct access to the seats at all points. The office departments are treated in a simple Classical manner, with a later Renaissance detail. The departments which require to be most directly accessible for the public are placed on the ground level on one side, the borough treasurer has his large rates and general offices close to one of the office entrances, and on the other side is placed the electrical engineer's department, with its show-room, also easily accessible. The medical officer's laboratories are placed in the centre block of a semi-circular shape, with ample light and ventilation, and direct access to the yard and basement, thus providing a means of access completely distinct from all other parts of the building. It is impossible to show clearly such a scheme by elevations only, as it depends for its effect on the grouping of the various blocks in perspective, which can readily be appreciated by a study of the plans and elevations together. The scheme was submitted by Messrs. Nicol & Nicol, A.A.R.I.B.A.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a meeting of the Council of the Royal Institute of British Architects held on Monday, the 18th inst., it was decided, owing to the war, and the exigencies of the lighting regulations, to cancel the programme of papers and to suspend altogether the evening meetings which had been arranged for next session. The President, however, will deliver the opening address on November 1 as already announced, but the meeting will be held at three o'clock in the afternoon instead of eight in the evening. General meetings will also be held during the session for the election of members and the transaction of the usual business of the Institute, the meetings to take place at three in the afternoon. At the meeting of November 1 the portrait of Mr. Reginald Blomfield, R.A., Past-President, painted by Mr. J. J. Shannon, R.A., will be formally presented to the Institute. It has also been decided that the hours of the Institute Library should, until further notice, be from 10 A.M. till 6 P.M., instead of from 10 A.M. till 8 P.M. as hitherto.

R.I.B.A. EXAMINATIONS.

The galleries of the R.I.B.A. not being available for exhibitions in consequence of their being devoted to the work of the Civic Survey of Greater London, the Council of the Architectural Association has kindly offered accommodation for the bi-monthly exhibitions of the problems in design.

The exhibitions will be held on the following dates at 18 Tufton Street, Westminster: November 8 to 13, 1915; January 10 to 15, 1916; March 6 to 11, 1916; May 8 to 13, 1916; and July 10 to 15, 1916.

Professor F. M. Simpson, F.R.I.B.A., will deliver a public lecture at University College on "St. Sophia, Constantinople, and the Mosques of Constantinople and Brusa," at 5.30 P.M. on Thursday, October 28. Admission will be by ticket, obtainable from the Secretary of University College on application, enclosing a stamped addressed envelope.

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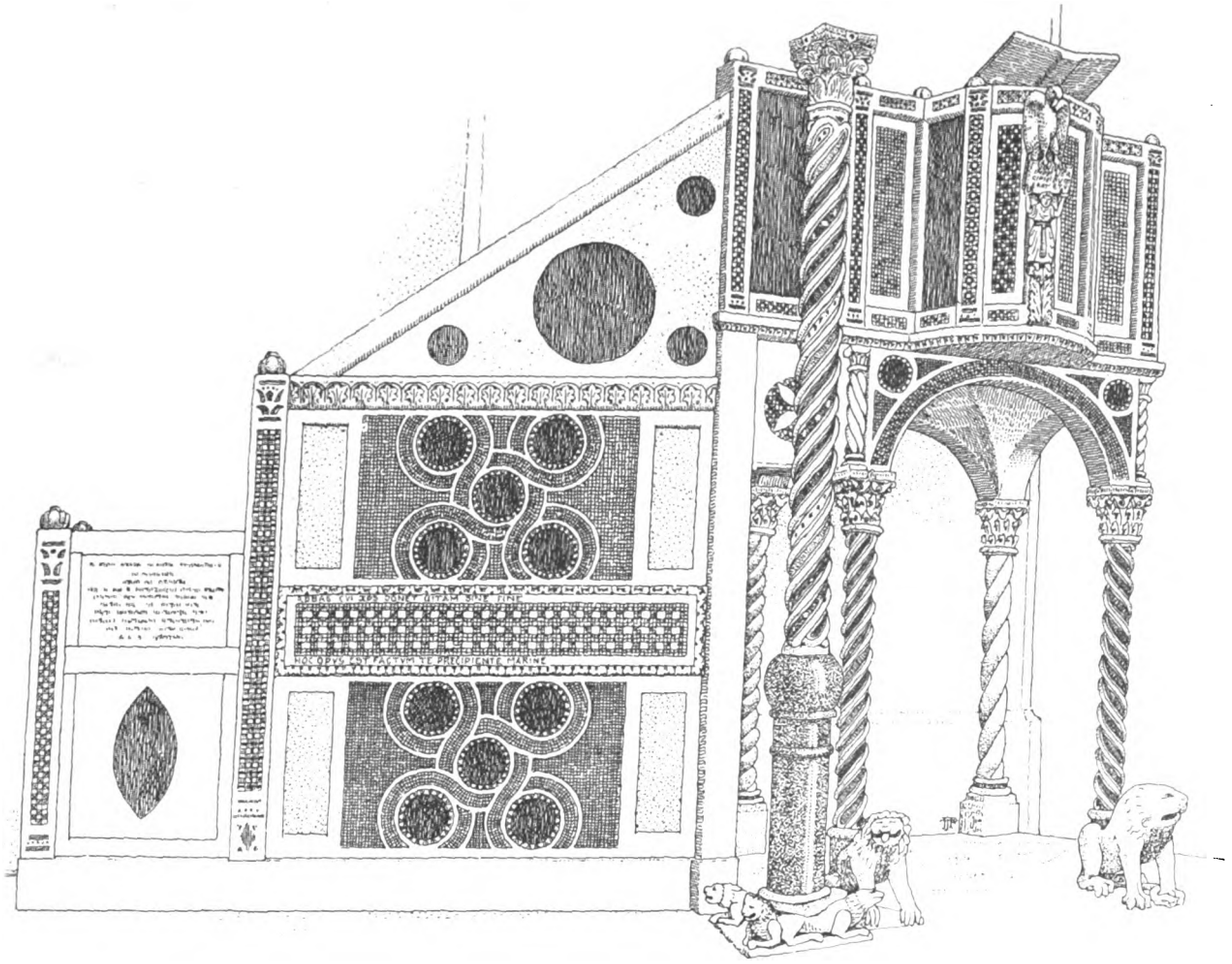


Fig. 6.—GOSPEL AMBONE IN CONVENT CHURCH OF SS. TRINITA, LA CAVA.

THE DOUBLE AMBONES OF SOUTH ITALY.

By the late J. Tavenor Perry.

(Concluded from last week.)

The Paschal candlestick, rising to a height of about 25 feet, stands independently in front of the Gospel ambone and appears to be contemporary with it. Although the shaft is most richly decorated with mosaics, it lacks the grace of the spirial shafts of the Roman examples. It is much of the same character, though not quite so richly ornamented as the more famous one at Palermo, which we shall presently describe; and it may be taken as a typical example of the South Italian candlestick, of which a great many remain, although the ambones have been destroyed.

A few miles from Salerno in the church of the celebrated Benedictine Convent of SS. Trinità, at La Cava, an offshoot of that of Monte Cassino, are remains of a fine Gospel ambone of the twelfth century. An inscription on the wall of the staircase records the fact that, the structure having collapsed owing to decay, the remains, which became scattered about the place, were collected and the ambone set up again and restored by a Carthusian brother from Nocera in 1880 (fig. 6). It is fortunate that the work of the modern amateur architect is easily distinguished from the ancient portions; and, assigning to him the ramp walls of the staircase, except its mosaic panels, and possibly the arches over the columns, we feel confident that the rest of the structure as we now see it retains its original appearance. The parapets and pulpit are but little advanced in style beyond the older ambone of Ravello already described; and the carving of the supporters to the book desk, a figure holding an open book on which stands an eagle, is rude and conventional. The four columns seem to be of later date than the parapets, and the two front ones, which have mosaic in their spiral flutes, stand on the backs of rudely carved lions somewhat stiff in style. The capitals are not ancient, but rough copies of debased Roman ones decorated with wind-blown acanthus leaves. The fine Paschal candlestick in front of this ambone seems also to be of two periods; the capital and the base, standing on four grotesque beasts, may be of the twelfth century, but the spiral shaft inlaid with mosaics must belong to a century later.

The church of S. Giovanni del Toro, at Ravello, still retains a very beautiful Gospel ambone (fig. 7), though it has not escaped a certain amount of mutilation. In general appearance it is similar to the last described and to the Epistle ambone of Salerno; like them, it is raised on arches, and it may belong to the middle of the twelfth century. It stands on four granite columns with ancient capitals, which do not fit them, decorated with wind-blown acanthus leaves interspersed with little animals; and from these rise the arches supporting the platform. The parapets, which are rich in mosaics, are carried on a carved oversailing moulding, and the pulpit, which projects on the north side, has an eagle carrying the desk, and holding in its claws a book supported by an angel with the other Evangelistic symbols.

The Paschal candlestick is not, in this case, a separate erection, but is formed by carrying up the pilaster at the north-east angle and forming it into a sconce supported by two figures. The lower part of the ramp as well as of the bridge, which occurs here as at Salerno, have been walled up and painted over at a subsequent date, thus hiding much of the original arrangement; but the ambone, small though it be, is one of the most graceful in Italy.

It must be noticed that there are some beautifully sculptured fragments of arches, now in an adjoining hotel, of what may have been, and probably was, the Epistle ambone of this church, destroyed when it was modernised.

The great ambones of the Duomo at Amalfi, which probably rivalled those of Salerno in richness and size, were destroyed by the Ambonoclasts in 1647, but fragments of their very beautiful and oriental-looking mosaic decoration are scattered about the church; the eagle which supported the desk is in the baptistry, and two columns, with their Corinthian capitals, are in the presbytery. A similar fate overtook the ambones of the Annunziata of Minuto in the neighbourhood, deliberately destroyed so recently as 1855 by the order of the Archbishop of Amalfi. This is the more to be deplored as it was a fourteenth-century erection, a late date for an ambone in these parts, and stood on four columns supporting trefoiled arches, all

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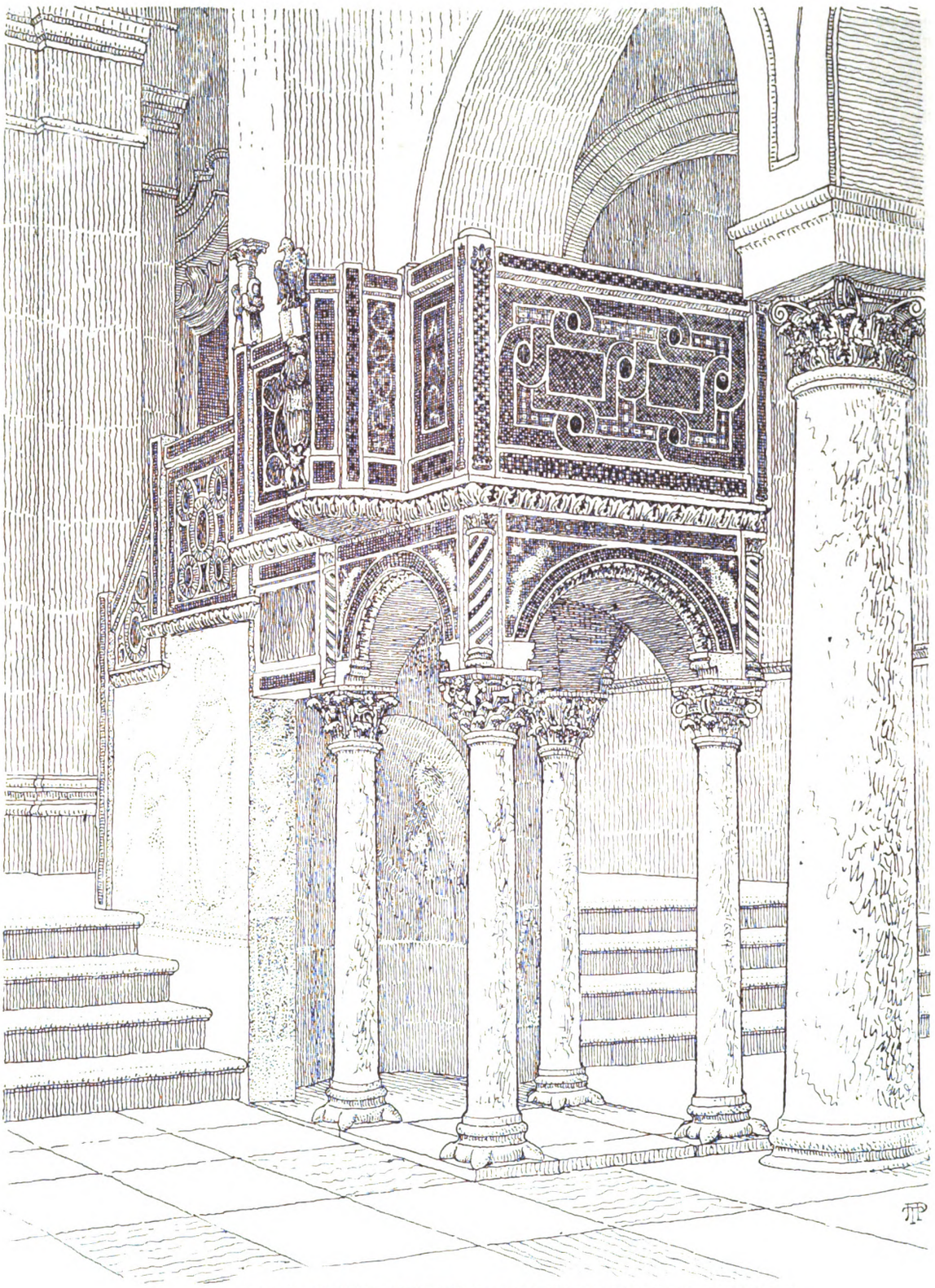


Fig. 7.—GOSPEL AMBONE IN S. GIOVANNI DEL TORO, RAVELLO.

very richly carved and having the armorial bearings of the Spina family.

The last ambone of any importance erected in the Principata and still remaining is the great Gospel ambone of Ravella Cathedral. This is perhaps better known generally than any other ambone in Italy, except those of Rome, not only for its remarkable richness and beauty, but for the dispute which has arisen as to the identity of the sculptor whose name is engraved upon it. The inscription runs thus:—

"Ego Magister Nicolavs de Bartholomeo de Fogia Marmorarivs Hoc Opvs Fecit," and leaves us in no doubt as to the name, while another inscription fixes the date at 1272. It was erected at the cost of Sigelgaita, the wife of Niccolo Rufolo, who lived in the neighbouring Saracenic palace; and much of the discussion as to the sculptor's identity has arisen from the assumption that a beautifully sculptured head standing over the entrance doorway is a contemporary portrait of Sigelgaita. But the head is not an integral part of the composition, so that whether it is a portrait of the donor, or, more probably, of Queen Joanna of Naples by a later sculptor, does not affect the interesting question raised by certain peculiarities to be found in the work itself. J. A. Symonds, in the third volume of his "Renaissance in Italy," sums up all the arguments adduced by Messrs. Crowe and Cavalcaselle and others to show that there was some connection between Niccolo Pisano and Niccolo da Fogia; but beyond some casual likeness between the lions of the Ravello ambone and those of the Pisa pulpit, which may be accidental, he sees no ground for such a theory.

In most respects this ambone follows the lines of the

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Gospel ambone at Salerno; it has the same oriental-looking door of entrance, and the bridge from the stairs to the pulpit, as in Coptic examples in Egypt. The six columns on which it stands are not ancient, but of white marble with spiral fluting inlaid with mosaic, and rest on the backs of beasts in various attitudes, three being lions and three lionesses; and the capitals are exquisite specimens of thirteenth-century carving. Although we noticed lions under the columns of the ambone at La Cava of an uncertain date, they are a feature more common in Apulia, whence the sculptor of this ambone came; and the idea of so using them, which spread through all the Lombard cities of Italy, was introduced by returning crusaders who had seen such lion bases in the ruined Hittite cities north of Antioch. The parapets round the platform oversail on a cornice of flowing foliage, and the angles are emphasised by spiral columns inlaid with mosaic; and the eagle for the book, which stands on a similar column, is remarkable for having its wings closed and for bearing no desk. There is no Paschal candlestick now attached to this ambone, and it is possible that when the cathedral was modernised some years ago it was removed.

We have already spoken of an early and destroyed ambone at Sessa Aurunca, and another one, the Gospel ambone, fortunately still remains on the south side of the church, standing half in the aisle with the other half projecting into the nave. It seems to have been the gift of a Bishop Giovanni between 1259 and 1283, and to have been the work of Peregrino da Sessa, whose name is mentioned in a diploma of 1273, and who has inscribed his name on the base of the candlestick. The general aspect is similar to that of the Epistle ambone of Salerno, except that the platform is oblong, and though it is used for the Gospel there is no eagle to the desk. The mosaics are very rich and similar to those of St. Giovanni del Toro. Its six stunted columns, which rest on lions all facing towards the north, carry arches having statues between them and at the angles, and the underside is vaulted without ribs.

The Paschal candlestick has a spiral shaft inlaid with mosaic and banded with carving in low relief, and stands on a circular unmoulded slightly conical base, having round it standing figures alternating with foliage, and round the top and bottom of it runs the inscription recording the sculptor's name.

We have now to turn to the great ambone of the Cappella Palatina at Palermo, erected, perhaps, about the same time as those of Salerno. It stands across the east end of the south aisle, with its front projecting into the nave a little beyond the arcade; one end rests against the aisle wall and the remainder is carried on four columns, of which the northern pair is worked into a Norman chevron ornament and the others are of red Sevarezza marble. The front of the parapet is formed of one very fine slab of porphyry set in a panel carved round, and the aisles and bridge have flowing mosaic carried round small circular plaques of porphyry; and the desk is supported by an eagle with outspread wings. There is a doorway of approach to the stairs as well as a bridge, as at Ravello and Salerno.

The Paschal candlestick, which stands to the north-west angle of the ambone, is one of the finest in Italy, is 14 feet high, and, according to legend, was imported by King Roger from Byzantium, but may be the work of Niccola of Apulia. It rises from a base resting on four lions, and the shaft consists of belts or figure sculpture alternating with acanthus leaves, and the iconography is worthy of more description than we have space for here. The base and shaft are in one piece of white marble, but the original capital or sconce has been destroyed, and in place of it in the fifteenth century was added a glit tazza supported by half-nude figures.

Among the candlesticks remaining where the ambones have been pulled down, though some fragments of them have been preserved, two must be mentioned, those of Capua and Gaeta. The candlestick of Capua is somewhat similar, though inferior, to that of Salerno, but is crossed by occasional bands of carving; while that at Gaeta, which stood on the Piazza for many years exposed to the weather and is now in the cathedral, is sculptured with scenes from the life of Christ in bands, but the capital and sconce have been lost.

The two fine ambones in the Duomo of Benevento are of various dates, and seem to have been reconstructed with additions at different periods. Each stands on six columns of marble or black granite except the central one on each face, which is spirally fluted for a mosaic inlay which has fallen out. The six columns of the Gospel ambone and the three front ones of the Epistle ambone stand on lions, and all this lower part of the two ambones, with the richly carved capitals, appears to be early fourteenth-century work, and is inscribed "Nicolaus de Monteforte, 1311." The parapets of the plaforms are later; and the front face of each has three statues under Gothic canopies, the centre one on the north side being the Madonna with the Bambino in the act of giving Him an apple. The Paschal candlestick is very similar to that of Salerno, and like that of Gaeta has lost its capital.

At St. Valentino, Bitonto, in Apulia, are two ambones which have suffered mutiliation, and both are now to be found on the south side of the church, that for the Gospel standing just within the choir. This has a pulpit much like those of Ravenna on plan, with the curved part divided into twelve panels containing rosettes, and having the wings and returned sides covered with a fine interlacing ornament inlaid with cement. At the angles are spiral columns with boldly carved capitals surmounted with very elegant finials. The book desk rests on a great eagle with folded wings standing upon a nude, crouching boy. The lower part is modern, but the ancient ramp to the staircase has been preserved, carved in bold relief with the Visit of the Queen of Sheba to Solomon. All this is the work of one "Nicolaus, Sacerdos et Magister," in 1229; but the other ambone, which is square and served for the Epistle, is signed "Magister Bonifacio."

The cathedral of Cagliari, in the island of Sardinia, retains the pulpit portions of two remarkable ambones made in 1260, which have been shifted from their original position and set up on each side of the entrance. They are attributed to Guglielmo dell' Agnolo, the pupil of Niccolo of Apulia. They are decorated along their fronts with two bands of sculptured scenes from Scripture history carved in high relief, and have in the centre of each face bold groups supporting the desks, that for the Gospel having a great eagle raised high above an angel with the two other Evangelistic symbols, whilst the other group consists of three angels immediately under the desk, and below them three figures of which the central one carries an open book.

Such are the principal double ambones remaining in South Italy, but it is very probable that many of the single ones scattered over the same provinces once had companions of which they have been bereft.

INSTITUTION OF HEATING AND VENTILATING ENGINEERS.

The autumnal general meeting of the above institution was held on the 12th inst. at the Holborn Restaurant, W.C. Mr. H. H. Grundy, President, was in the chair.

After some preliminary business, including the election of several new members, Mr. S. Naylor was elected President for 1916, and Mr. W. W. Nobbs Vice-President. Nominations were also read for the Council.

Mr. Walter Jones (Past-President) then read a paper, of which we give an extract, entitled:—

"Heat Transmission and Heat Emission."

In the following formulæ for estimating the amount of radiation required for warming buildings by the low-pressure hot-water system, the tests made by the Heating Department of the University College, London, during January and February 1914, at the office of Messrs. John Grundy, Ltd., are taken as a basis.

The calculations throughout are for the same room, mentioned by Mr. C. H. Avery in his paper on "Some Experiments on the Loss of Heat from Buildings"—(Report 1914-15, Vol. XV., p. 73)—read before the Institution of Heating and Ventilating Engineers, London, on June 23, 1914.

To find the Amount of Heating Surface required for any Class of Building.

The first essential for designing a successful heating installation is to strike a balance between heat losses (transmission) through glass, walls, and other cooling surfaces, and the heat given off (emission) by the radiating surfaces. To arrive at the losses it will be necessary to—

(1) Ascertain the total cooling surface in square feet of glass, walls, ceilings, floors, &c., bearing in mind that losses occur through all substances in every direction, and that heat must be provided to cover all such losses;

(2) The cubic contents of the room, and the number of times the air has to be changed per hour;

(3) The temperature difference in degrees Fah. between the room and the outer air; and

(4) The excess temperature of the radiator in degrees Fah. above that of the air in the room;

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(5) The heat emitted in B.T.U. per foot super of radiator per degree difference per hour.

After obtaining the foregoing particulars we must ascertain what co-efficients will provide the necessary emission (Nos. 4 and 5) from the radiating surface, to balance losses due to transmission (Nos. 1, 2, and 3).

The heat loss co-efficients (K) given by different authorities vary somewhat, as shown in

TABLE No. I.—Transmission.

It is proposed to adopt—

				K			
Glass... ...	from	1	to 1.08	1	per	sq. ft.	glass.
Walls (outer)	,,	.14	,; .37	.25	,,	,,	wall (outer).
Walls (inner)	;,	.12	,, .28	.17	,,	;,	wall (inner).
Ceilings with room above	,,	.17	,, .35	.2	,,	,;	Ceilings with room above.
With roof space above	,,			.3	;;	;;	
Floors ...	;,	.07	,, .17	.1	,,	;,	floor.
Air	,,	.018	;, .019	.018	,,	,,	per cubic ft. of air.

Note.—One B.T.U. will raise 55 cubic ft. of air 1° Fah., hence 1 B.T.U. ÷ 55° = .018 (K) per cubic ft. of air.

TABLE No. II.—Emission.

The emission from radiators varies from 1.3 to 1.7.

The emission from plain pipes varies from 1.7 to 2.2.

It is proposed to adopt 1.5 B.T.U. per foot super of radiator per degree per hour.

Window area should include frames and sashes—i.e., wall to wall.

Wall (inner) may be ignored when the room or passage on the other side of it is warmed to approximately the same temperature.

Floors may be ignored when the room below is warmed.

Symbols.

Please bear in mind that the calculations throughout this paper are based upon that elusive little symbol (that can neither be seen, heard, or handled, that is neither atom, molecule, matter, or substance) called a B.T.U., clumsily expressed as a British Thermal Unit. It has often puzzled me that such huge things as the earth, stars, sun, or universe are expressed in short terms, whilst tiny things require the longest words, such as infinitesimal, thermodynamics, &c. Surely H.U. (heat unit) would be a more convenient symbol.

The following symbols are used throughout this paper:—

K = Co-efficient (loss in B.T.U.'s) per square foot (of glass or other surface) per degree per hour.

T = Transmission through cooling agent.

E = Emission from heating agent.

H = Co-efficient (gain in B.T.U.'s) per square foot (of radiator, &c.) per degree per hour.

to = Temperature in degrees Fah. outside of room.

tr = Temperature in degrees Fah. inside of room.

tw = Temperature in degrees Fah. water in pipes, &c.

C = Constant to cover losses due to differences in temperature

D = Divisor, the reciprocal of M or (1 ÷ M) to cover all losses.

M = Multiple per square foot of glass, &c., to cover all losses, and thus balance Transmission by Emission.

While the subject matter contained herein is of a highly technical character, the writer will endeavour to render it intelligible to those who have lacked the opportunity of a scientific training.

The problem of artificial heating is to provide heat sufficient to maintain the balance between the heat transmitted through the glass, walls, or other cooling medium to the outside of building; and the heat emitted from the radiators, or other heating agent to the inside of the room.

Transmission, whether due to surface area of glass, walls, &c., or to the difference between the temperature of the room and the outer air, represents loss of heat in B.T.U.'s and should be placed in the dividend—above the line.

Emission, whether due to the feet super of radiation or to the difference in temperature—between the water in pipes and the air inside the room—represents gain of heat in B.T.U.'s, and should be placed in the divisor. The quotient will represent the quantity of heat in B.T.U.'s to balance the transmission losses and emission gains.

This brings us to the first equation.

(1) Transmission (T) = Emission (E).

(2) The primary units are:

Unit of time = 1 hour.
,, surface = 1 square foot.
,, volume = 1 cubic foot of air.
,, heat = 1 B.T.U.

(3) The unit of time being equal on both sides of equation cancel each other.

(4) Transmission is proportionate to the surface area, 1 square foot of surface (or 1 cubic foot of air-volume) transmits a given number of B.T.U.'s in a unit of time.

(5) The glass, the walls, and other cooling agents transmit a quantity of heat in B.T.U.'s per square foot of area (or per cubic foot of air) per degree Fah. (difference between the temperature inside the room, and the air outside) per hour.

(6) Let K = the co-efficient of B.T.U.'s transmitted per unit of surface (or volume) per degree per hour (see Table 1).

Formula No. I.

(7) The area in sq. ft. (or volume in cub. ft.) of transmitting medium × K = T

(8) The amount of heat transmitted per unit of surface area depends upon the following three factors:—

The temperature of room.
The temperature of outer air.
The rate of transmission of cooling agent.

(9) Then (tr—to) K = T for difference in temperature;
or (60°—30°) K = T ,, ,,

(10) We next come to Emission (heat gains) from the pipes, radiator, or other heating agent.

(11) The heating agent emits a quantity of heat in B.T.U.'s per square foot of surface area, per degree Fah., difference between the heating surface of agent and the temperature of the room, in a unit of time.

(12) Let H = the B.T.U.'s emitted per square foot per degree per hour.

Formula No. II.

The area in sq. ft. of heating agent × H = E

(13) The amount of heat emitted per unit of radiating surface depends upon the following three factors:—

The temperature of room;
The temperature of water;
The rate of emission of heating agent.

Then (tw—tr) H = E for the difference in temperatures.

T = E

Therefore (tr—to) K = (tw—tr) H.

Assuming the temperature of the room to be 60°, the outer air 30°, the water 160°, and H to be 1.5, then the Constant (C) may be obtained by

Formula No. III.

$$\frac{(tr\text{———}to)}{(tw\text{——}tr)\ H} = C \text{ (Constant) to cover the losses due to differences in temperature.}$$

Example of working Formula No. III.

$$\frac{(60°\text{——}30°)}{(160°\text{—}60°)\ 1.5} = .2$$

Formula No. IV.

C (Constant) × K = M (Multiple) per square foot of glass, &c., to cover all losses.

The unit 1 ÷ the Multiple (M) Col. 3 = the reciprocal (D) Col. 4 for each medium.

Examples of working Formula No. IV.

C	K	M				D
.2 ×	1.	= .2	per sq. ft. of glass—its reciprocal (Divisor) is			5
.2 ×	.25	= .05	,; ,;	wall (outer)	,;	20
.2 ×	.17	= .034	;; ;;	wall (inner)	;;	30
.2 ×	.2	= .04	,; ,;	ceiling	,, ,,	25
.2 ×	.1	= .02	,, ,,	floor	;, ;,	50
.2 ×	.018	= .0036	per cubic ft. of air		,;	(1 change) 280

By the use of these formulæ one is enabled to obtain quickly with less liability to errors, by a simple sum in multiplication (or division), the feet super of radiation for each cooling medium, and the total surface required for warming the room.

The main object for adopting standards for stated temperatures is to expedite the calculations, to economise time, and to ensure uniformity in practice; but whether this or any other method is adopted, the experience and judgment of the engineer alone will ensure uniform success. Without this, all the formulæ, charts, tables, diagrams, &c., will be so much waste paper.

Allowances, at the engineer's discretion, will always be

(*Continued on page* 333.)

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ROLL of HONOUR

ARCHITECTS, ARCHITECTS' ASSISTANTS AND STUDENTS SERVING IN HIS MAJESTY'S FORCES

Sacre, L. H., 2nd Lieut.	2nd Batt. Essex Regt.
Sagar, W. H., Corpl.	Royal Engineers.
St. John, Richard	9th Batt. H.L.I.
St. Leger, C. D.	R.A.M.C.
Salter, W. E.	Royal Welsh Fusiliers.
Salton, B. H.	Univ. and Public School Corps
Sample, E. F. R.	Yorkshire Hussars.
Sanders, J. E.	Lancs. Hussars.
Sarjisson, W. F., 2nd Lieut.	Indian Army.
Saunders, Bernard	6th Batt. Royal Warwicks.
Saunders, J. T.	London Scottish.
Savage, C. F.	London Scottish.
Saxon, F. C.	
Sayers, A. D.	5th East Surrey.
Schofield, Edgar	5th East Surrey Regt.
Schofield, J. F.	Royal Engineers.
Schumann, C. L. G.	7th Middlesex Regt.
Scorer, G. O., Lieut.	Royal Engineers' Staff.
Scotland, Geo. B.	
Scott, A., Lieut.	R.G.A.
Scott, A. Gilbert, Lieut.	Royal Anglesey R.E.
Scott, A. I.	
Scott, Bernard W. H.	1st Surrey Rifles.
Scott, J. B., Lieut.	14th Batt. Royal Fusiliers.
Scott, J. Mailler, C.Q.M.S.	Forth R.G.A.
Scott, T.	Fife and Forfar Yeomanry.
Scott, W. P.	17th Batt. (1st City of Glasgow) H.L.I.
Scott-Moncrieff, W. W.	Royal Engineers.
Scott-Willey, H. H.	R.N.V.R. (Anti-Aircraft).
Seaborne, E. S., L.-Corpl.	1st Monmouth Terr.
Searle, Norman, Sub-Lieut.	Royal Motor-Boat Reserve.
Searle, Sydney, Lt.-Comdr.	R.N.V.R.
Seppelt, J. G.	R.A.M.C.
Sergent, R. N.	Royal Engineers.
Seward, H. J.	Royal Engineers.
Sewell, R. V. T., 2nd Lieut.	Royal Engineers.
Shanks, T. E. T., Sapper	Royal Engineers.
Shapley, A. E., Lieut.	23rd Batt. Northumberland Fus.
Sharpe, E.	Artists' Rifles.
Shaw, A. Barry, Q.M.S.	Sheffield Batt. York and Lancaster Regt.
Shears, Reginald	9th Batt. Queen Victoria Rifles.
Shenstone, G., Capt.	7th Essex Regt. (Wounded.)
Sheppard, A. C., Despatch Rider	W. Army Corps.
Sheppard, R.	R.A.M.C.
Shepperd, Thos., Sec.-Lieut.	2nd Batt. Warwick Regt.
Sheret, A. S.	Scottish Horse.
Sherrin, Frank, Capt.	6th City of London Rifles.
Sherwin, Cecil I.	R.A.M.C.
Shibley, A. R.	10th Batt. D.C.O. Middlesex Regt.
Shipway, G. F.	28th County of London.
Shuffrey, G., Lieut.	6th South Lancashire Regt. (Wounded.)
Shurmur, S. E.	Belgian Field Ambulance.
Siddall, S. M., Corpl.	5th Gloucester Regt.
Silcock, A., 2nd Lieut.	South Staffordshire Regt.
Sinclair, W. B.	7th Batt. City of London Regt.
Skinner, T. A., 2nd Lieut.	3rd Batt. Gloucester Regt.
Skipwith, F. P., Capt.	7th Batt. Royal Scots Fusiliers.
Slack, H. B.	Sheffield Batt. York and Lancaster Regt.
Sladdin, T. L., Lieut.	Army Service Corps.
Slater, J. Alan	O.T.C.
Small, Alexander	Royal Irish Rifles.
Small, Robt. A.	
Smellie, Alex.	Army Service Corps.
Smith, A. D.	Royal Engineers.
Smith, C. Bouton	King Edward's Horse.
Smith, E. J., Corpl.	21st East Anglian Div., Headquarters Staff.
Smith, E. Kennedy, 2nd Lt.	1st East Kent Regt.
Smith, E. T.	R.N. Div. Engineering Unit.
Smith, Frank W., 2nd Lt.	3/2nd Wessex Regt.
Smith, G. T.	H.A.C.
Smith, R. R. Tate	Mechanical Transport Corps.
Smith, S. R.	Royal Engineers.
Smith, W. J., 2nd Lieut.	Northumberland Divl. Engineers.
Smithers, Alec, 2nd Lieut.	R.G.A.
Soissons, Louis de, 2nd Lt.	A.S.C.
Solon, P. H.	Royal Engineers.
Somerset, J. H.	Artists' Rifles.
Soulby, A. C.	B.E.F., France.
Southcombe, J. C., Capt.	6th Devons.
Southorn, T. M.	R.G.A.
Sowerby, F. D., 2nd Lieut.	4th Hussars.
Spain, Joseph, Major	7th Durham Light Infantry.
Spencer-Smith, C. O. Capt.	The Queen's Westminster Rifles.
Spicer, W. H., Trooper	Warwickshire Yeomanry.
Spooner, F. P.	County of London Field Amb.
Spratt, C. Norman	Royal Flying Corps.
Squire, J. H., Capt.	R.F.A.
Stableford, C. A.	Middlesex Yeomanry.
Stafford, J. E., 2nd Lieut.	Durham Light Infantry.
Staniforth, G. L.	Sheffield Batt. York and Lancs. Regt.
Stanley, Gerald, Lieut.	4th Batt. Wilts Regt.
Stanton, J. B., 2nd Lieut.	4th Batt. Northumberland Fus.
Stedman, W. B., Sergt.	R.A.M.C.
Steel, W. P.	3rd Batt. Royal West Kent Regt.
Steer, W.	Artists' Rifles.
Stephens, S.	19th Batt. Manchester Regt.
Stephens, W. L.	R.N.D. Engineering Unit.
Stevens, R. G.	Royal West Kent Regt.
Stevenson, E. G.	R.E., Divisional Staff Officer.
Stewart, Alan, 2nd Lieut.	14th Batt. Royal Scots.
Stewart, Alex. D., Lieut.	17th Batt. Royal Scots.
Stock, C. H., Commission	London Regt.
Stoddart, R. W., Sapper	Royal Engineers. (Wounded.)
Story, P. F., Capt.	96th Field Co. Royal Engineers.
Story, P. F., Capt.	9th Batt. Royal West Surrey Regt.
Strachan, J.	R.A.M.C.
Stransom, W. R.	15th County of London.
Stroud, A. W., Chief Petty Officer	R.N. Air Service.
Stuart, A. D., 2nd Lieut.	10th Seaforth Highlanders.
Stubbs, E. W.	R.A.M.C.
Sturgeon, R. V.	2nd Batt. Manchester Regt.
Sudlow, H.	Calcutta Volunteer Rifles.
Sugden, W. Swire	R.F.A.
Sutcliffe, Eric J., Corpl.	R.A.M.C.
Sutherland, G. A., Lieut.	2/5th Seaforth Highlanders.
Sutherland, W. W.	Field Engineers.
Sutherland-Graeme, A. V., 2nd Lieut.	4th Seaforth Highlanders.
Sutton, B. H.	Univ. and Public Schools Corps.
Sutton, W. A., Sapper	Royal Engineers.
Swanston, J. D.	7th Batt. Royal Highlanders.
Swindells, F. H., 2nd Lieut.	Royal Engineers. (Wounded.)
Swinton, J. G.	8th Hampshire Regt.
Sykes, A. R., Lieut.	14th Batt. King's Liverpool Regt.
Symington, H. A., Lieut.	10th Batt. Leicester Regt.
Symonds, W.	35th Batt. Canadian Regt.
Symonds-Jeune, B. H. B., Lieut.	Railway Supply Detachment.
Syms, R. H., Lieut.	Royal Engineers.
Tanner, D. G., Lieut.	Royal Engineers.
Tanner, E. J., Lieut.	A.S.C.
Tanner, Leslie, 2nd Lieut.	Signal Company, R.E.
Tanner, N. B.	Royal Engineers.
Tanner, S.	Royal Engineers.

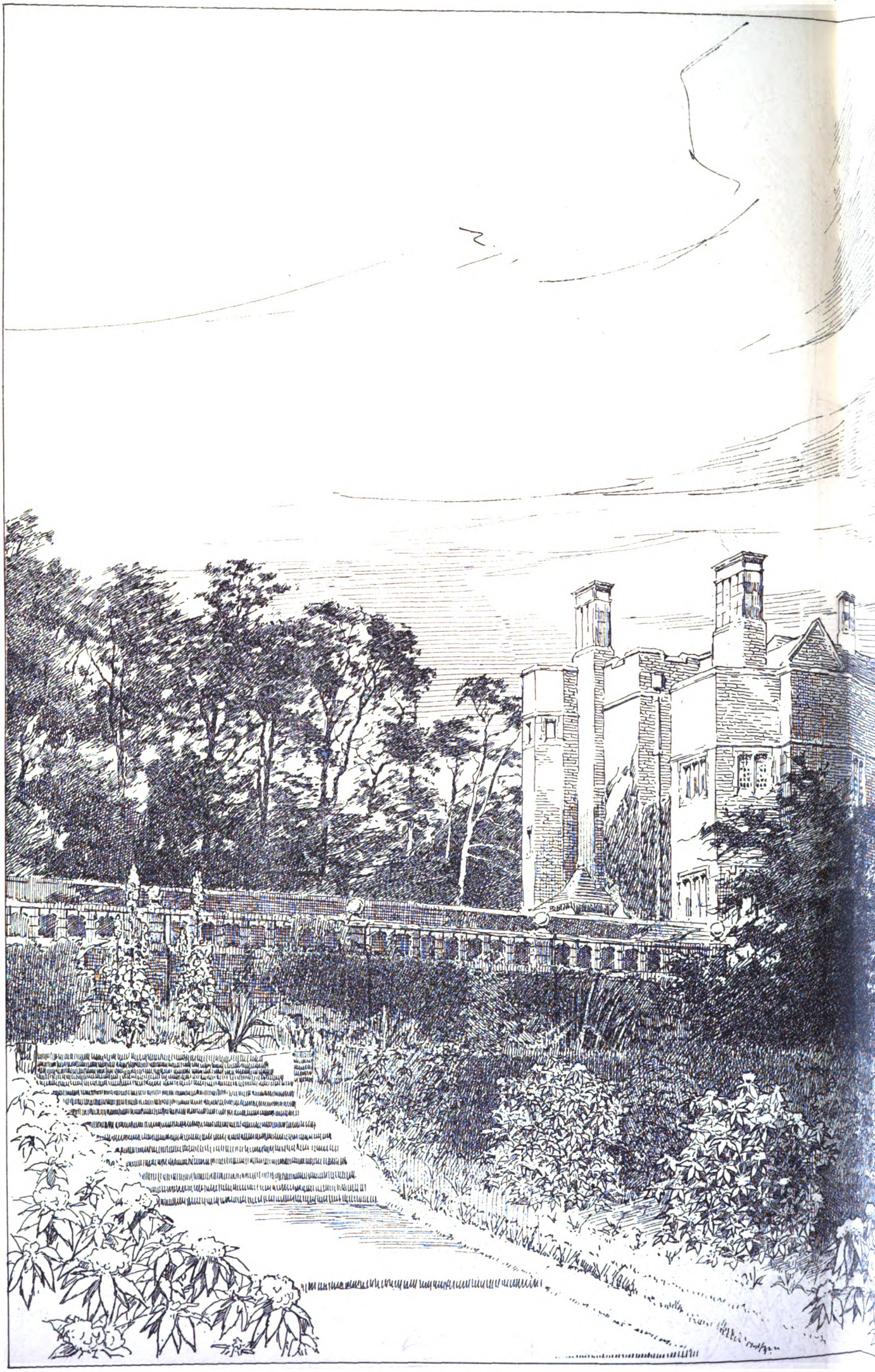
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Tanner, Stanley T.	Public Schools Corps.
Tapper, M. J., 2nd Lieut.	Artists' Rifles.
Tapping, F.	B.E.F., Mediterranean.
Tarrant, S. E.	Inns of Court O.T.C.
Tasker, A. K., Major	Tyne Electrical Engineers.
Tasker, R.	Artists' Rifles.
Tasker, W. W., Lieut.	Northumbrian R.E.
Tate, J. Duncan, Lieut.	22nd County of London.
Tattersall, S. E. V., Adjut.	3rd London Infantry Brigade.
Taylor, F. J.	H.A.C. (Invalided.)
Taylor, H. S.	13th Batt. Co. of London Regt.
Taylor, J. A. C., 2nd Lieut.	10th Batt. Manchester Regt.
Taylor, J. H.	R.A.M.C.
Taylor, J. J., Lieut.	11th Yorks Light Infantry.
Taylor, R. H.	R.A.M.C.
Taylor, R. M., Lieut.	9th County of Middlesex.
Taylor, T. L., 2nd Lieut.	9th Batt. K.O.S.B.
Taylor, W., Q.M.S.	West Riding Division, R.E.
Teasdale, J. B.	P.S. and U. Batt., Royal Fusiliers.
Tedcastle, J. G.	
Temple, T.	
Terrace, T.	Fife and Forfar Yeomanry.
Terrell, C., Driver	1st City of London Field Ambulance Transport.
Terrell, W. E. W.	R.A.M.C.
Thomas, Sir A. Brumwell, Major	A.S.C.
Thomas, A. P., Trooper	Glamorgan Yeomanry.
Thomas, H., Sergt.	R.F.A.
Thomas, Hugh, Lieut.	Royal Flying Corps.
Thomas, J. W., 2nd Lieut.	Royal Engineers.
Thomas, L. W., Corpl.	Welsh Div. Signal Corps.
Thomas, Noel	Royal Engineers.
Thomas, R. Wellings, Lieut.	Royal Engineers.
Thomerson, H. A., L.-Corpl.	13th Batt. Royal Fusiliers.
Thompson, A. E.	14th Batt. Royal Warwickshire Regt.
Thompson, A. J., 2nd Lieut.	1st Batt. Scots Guards.
Thompson, W. H.	H.A.C.
Thomson, D.	5th Highland Light Infantry.
Thomson, F. E.	2nd Birmingham Batt. Royal Warwicks.
Thomson, J. T.	London Scottish.
Thoresby-Cooksey, H.	R.G.A.
Thorne, H.	6th Devons.
Thornton, C.	Calcutta Volunteers Rifles.
Thornton, F.	Yorks Light Infantry.
Thornton, Frank C.	1st Line, 4th Yorks Regt.
Thorp, Norman, Lieut.	Royal Engineers.
Thurston, S. W.	Royal Engineers. (Invalided.)
Thwaites, J.	Artists' Rifles.
Todd, A. J. K., Lieut.	2nd Dragoon Guards.
Todd, W. H.	6th Highland Light Infantry.
Toothill, J. C. P.	Artists' Rifles.
Topham, G. R.	Artists' Rifles.
Townley, A. E.	King's Royal Rifles.
Townley, E. T.	Royal Welsh Fusiliers.
Toy, Leonard	18th Hussars.
Travers, Wilfrid, 2nd Lieut.	11th Batt. Cheshire Regt.
Traylor, W. M.	South Wales Borderers.
Trent, W. E.	H.A.C.
Trinink, P. J.	Engineering Units, R. Naval Div.
Tripp, W. M.	P.S. and U. Batt. Royal Fusiliers.
Triscott, H.	39th Divl. Signal Company, R.E.
Trollope, S. Harper	17th Lancers.
Troup, F. Gordon, Lieut.	10th County of London Regt.
Trouton, E. A., 2nd Lieut.	3rd Batt. Inniskilling Fusiliers.
Truelove, J. Reg., Lieut.	24th Co. of London. (Wounded.)
Tunnard, H. B., 2nd Lieut.	14th Batt. Cheshire Regt.
Turrill, V. E., Lieut.	13th Batt. Royal Fusiliers.
Turner, T. C., Lieut.	13th City of London. (Killed.)
Tyrwhitt, Thos.	R.N.A.S.
Unwin, E.	Australian Medical Service.
Unwin, Henry, Sapper	Royal Engineers.
Urwin, S. E.	R.A.M.C. 1st Midland Mounted Brigade.
Valder, W. E.	R.A.M.C.
Venn, G. O.	Royal Fusiliers (Public Schools).
Vergette, R. G.	Glamorgan Yeomanry.
Vernon, F. A., 2nd Lieut.	17th Batt. Northumberland Fus.
Vey, A. E., Sapper	Royal Engineers.
Vey, George, 2nd Lieut.	213th Fortress Co., R.E.
Vincent, P. J. Newby, 2nd Lieut.	Hants Yeomanry.
Waddington, H. G., L.-Corpl.	Duke of Lancaster's Yeomanry.
Waghorn, S., Sub-Lieut.	R.N.R.
Waite, C. L.	Royal Flying Corps.
Waite, R. A.	Royal Engineers.
Walch, J. B. M., 2nd Lieut.	2nd Batt. Roy. West Surrey Regt. (Killed.)
Walker, D. H., Lieut.	5th Batt. Prince of Wales' Yorks Regt.
Walker, E. Holsworth, Capt.	5th K.O.Y. Light Infantry.
Walker, J. W., Capt.	Gordon Highlanders.
Walker, R., 2nd Lieut.	Royal Engineers.
Walker, Wm., Lieut.	Highland Cyclist Batt.
Wallace, C., Trooper	Yorks Hussars.
Wallace, Jas.	5th Scottish Rifles.
Waller, N. H., Capt.	Gloucester Regt.
Waller, W. E.	Northern Cyclists.
Walter, R. A.	12th Middlesex.
Walter, R. A., 2nd Lieut.	10th Batt. Norfolk Regt.
Ward, Charles, Sapper	Royal Engineers.
Ward, J. S. B.	4th Batt. Gordon Highlanders.
Ward, W. H., Lieut.	10th Batt. West Yorks Regt.
Warren, H. G.	R.N.V.R. (Anti-Aircraft).
Warren, W., Sergt.	2nd Batt. Royal Fusiliers.
Warry, J. L., 2nd Lieut.	8th Notts and Derby Regt.
Waterhouse, M. T., Lieut.	Sherwood Rangers Yeomanry.
Watling, W. Grant	Lothian and Border Horse.
Watson, Bryan, 2nd Lieut.	5th Royal Inniskilling Fusiliers.
Watson, H. S., Corpl.	Royal Engineers.
Watson, W. E., Lieut.	1st City of London R.F.A.
Watt, C.	Fife and Forfarshire Yeomanry.
Watt, G. T.	9th Highland Light Infantry.
Watt, J. D. D.	16th Royal Scots.
Watt, Wm. R.	9th Highland Light Infantry.
Weaver, Laurence	R.N.A.S.
Webb, Maurice E., Lieut.	Royal Engineers.
Webber, W. K.	Artists' Rifles.
Webster, D., Lieut.	53rd Batt., Canadian Forces.
Webster, F. C., Lieut.	Army Ordnance Dept.
Webster, H.	Sheffield Batt. York and Lancs. Regt.
Weeks, F. Barrett, Lieut.	Royal Engineers.
Weightman, F. N.	Northumbrian R.A.M.C.
Welch, H. A.	Artists' Rifles.
Weston, K. V., 2nd Lieut.	4th Batt., West Yorkshire.
Wheeler, C. W. F., 2nd Lt.	A.S.C.
Wheeler, Montague, Lt.-Col.	4th Batt. Royal Berks (N.L.).
Whimster, H. M.	R.A.M.C.
Whitaker, J., 2nd Lieut.	171st Brigade, R.F.A.
Whitbread, Geo.	6th Manchester Regt.
Whitburn, A. S., 2nd Lieut.	Home Counties R.F.A.
Whitby, C.	Artists' Rifles.
White, E. F.	R.A.M.C. (Died.)
White, P. G.	28th County of London.
White, T. F. H., 2nd Lt.	7th Batt. Somerset L.I.
Whitehead, H. M., 2nd Lieut.	2nd Batt. East Surrey. (Killed.)
Whitehorn, R. T., Sapper	Royal Engineers.
Whitehouse, L.	2nd Batt. King's Liverpool Regt.
Whitelaw, Chas. E., Capt.	5th Batt. Cameronians.
Whitney, E. S., Rifleman	11th County of London.
Whittaker, F. B.	6th Gloucesters.
Whittington, H. N., Gunner	6th London Brigade, R.F.A.
Wicks, H. G., 2nd Lieut.	3rd S. Midland Brigade, R.F.A.
Wigglesworth, F. J.	Sheffield Batt. York and Lancs. Regt.
Wigzell, N.	3rd C.M.R.
Wilkie, W. F., Lieut.	4th Black Watch.
Wilkins, C. W., Corpl.	Royal Engineers.
Wilkinson, A. W., Lieut.	9th Durham Light Infantry.
Wilkinson, Leslie, 2nd Lt.	O.T.C.
Wilkinson, W. G.	3rd London Yeomanry.
Willan, W. S.	R.N.A.S.
Williams, Edward	A.S.C.
Williams, G. A.	O.T.C.
Williams, G. B., Capt.	4th Welsh R.F.A.
Williams, G. Hyde, 2nd Lt.	9th York and Lancs. Regt.
Williams, Percy J.	11th Welsh Regt.
Williams, R. J., Gunner	1st Welsh R.F.A.
Williams, Stanley H., 2nd Lieut.	8th Wilts Regt.
Williams, W., Trooper	Cheshire Yeomanry.
Williams, W. J. V.	Royal Engineers.
Williamson, F.	H.M.S. "Gibraltar."
Williamson, H. Rochead	1/1st City of Edinburgh, R.E.
Williamson, Robt.	Black Watch.
Williamson, Wm., Lieut.	7th Black Watch.
Wills, G. Berkley	O.T.C.
Wilsdon, P. T.	Royal Engineers.
Wilson, A. Needham, Capt.	6th Essex Regt.
Wilson, A. W.	6th North Hants.
Wilson, Cecil, Lieut.-Col.	7th Welsh Cyclist Corps.
Wilson, D. M., Lieut.	9th Batt. Inniskilling Fusiliers.
Wilson, F. C., Lieut.	South Staffs Regt.
Wilson, G. C.	R.G.A.
Wilson, H. E.	Public School Batt. Royal Fus.

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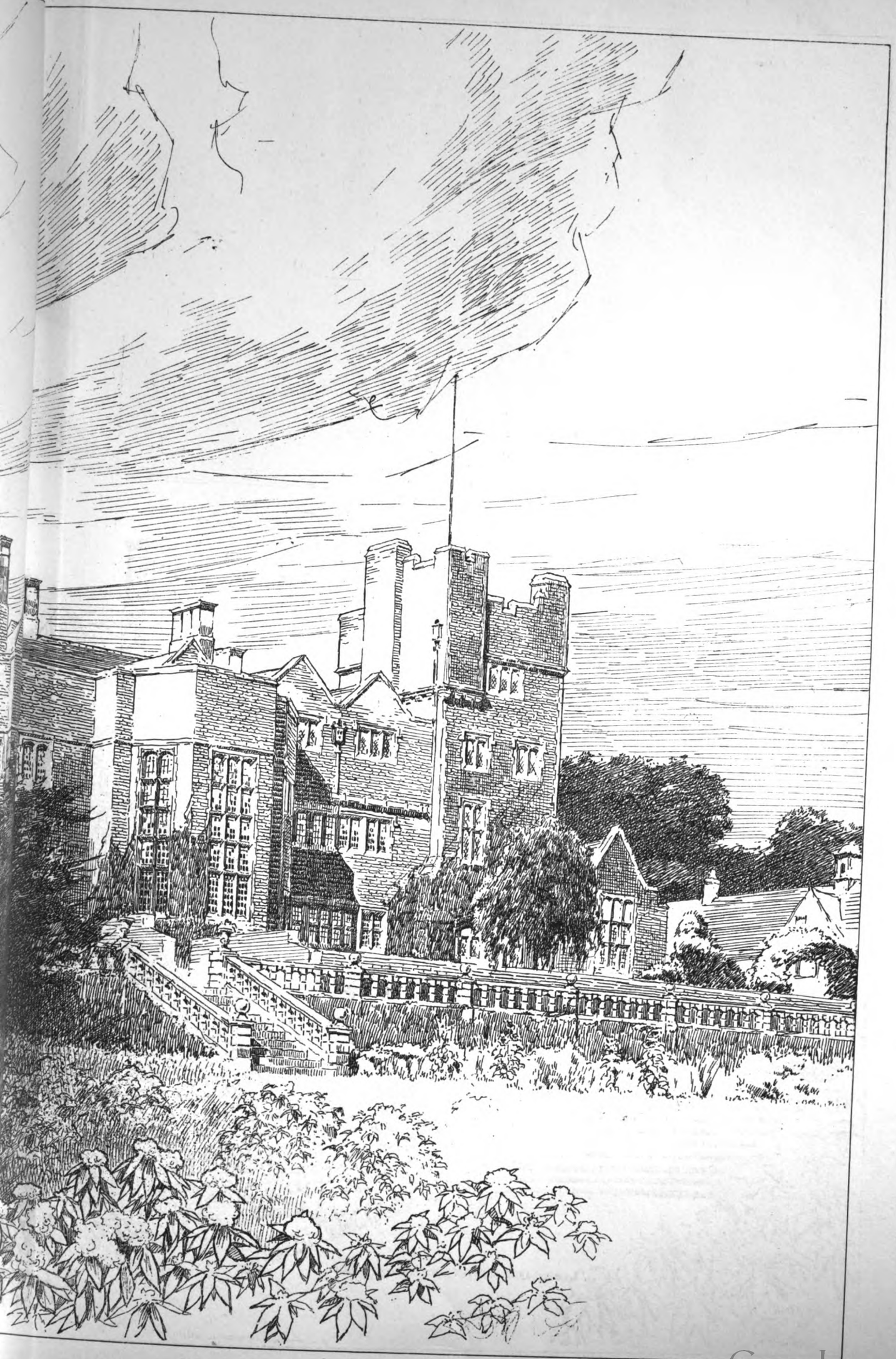


(Royal Academy Exhibition, 1915.)

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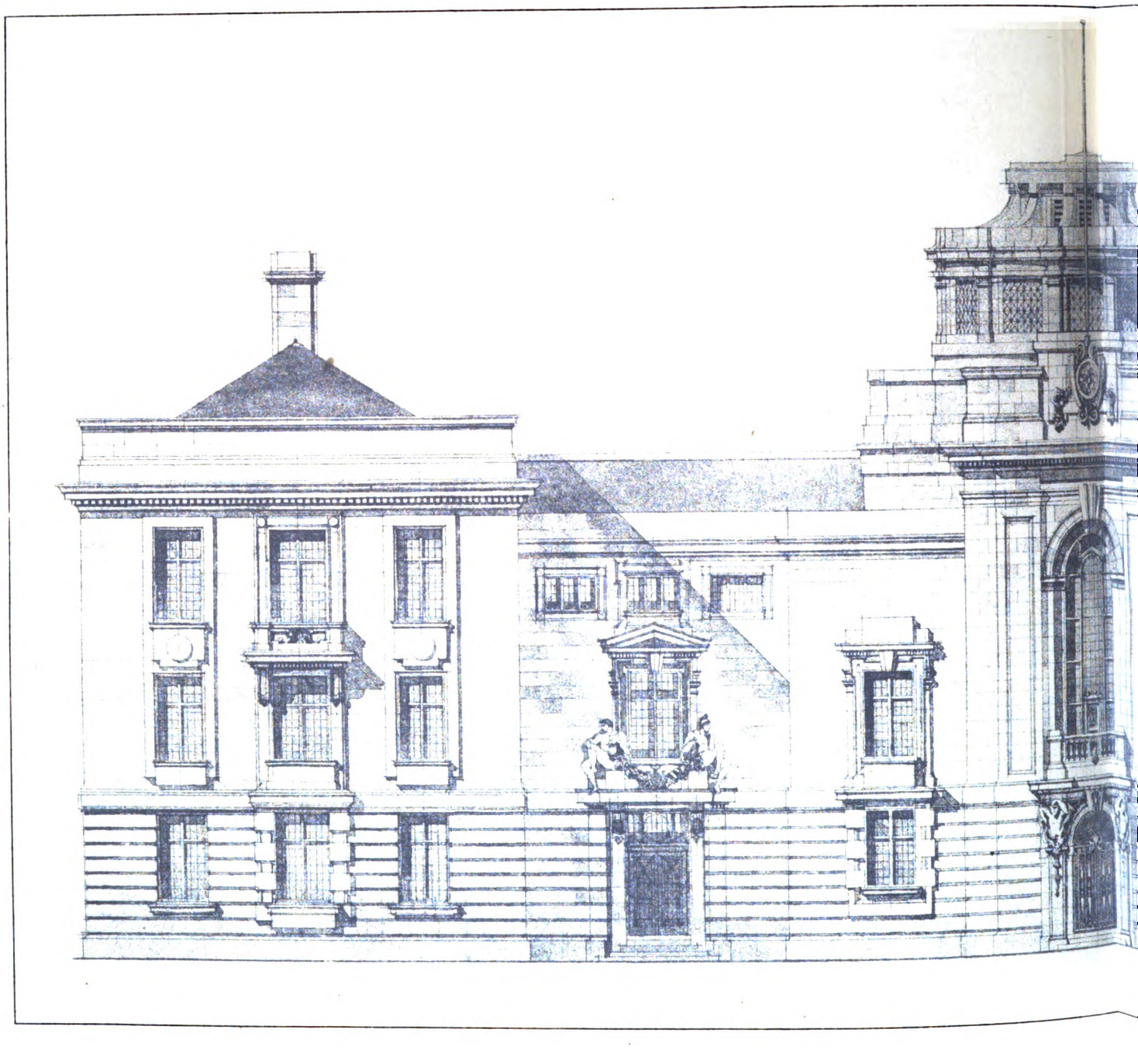
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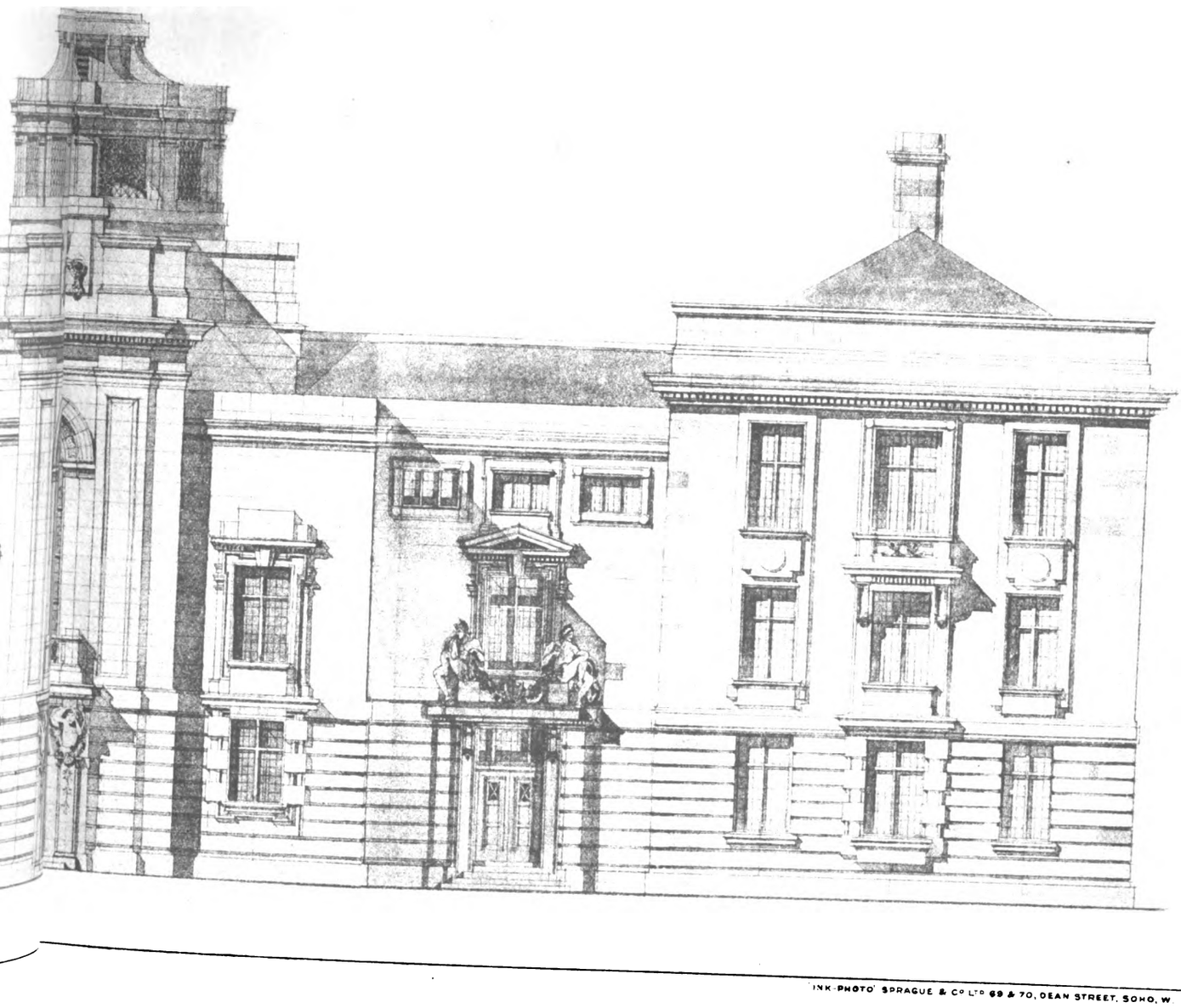


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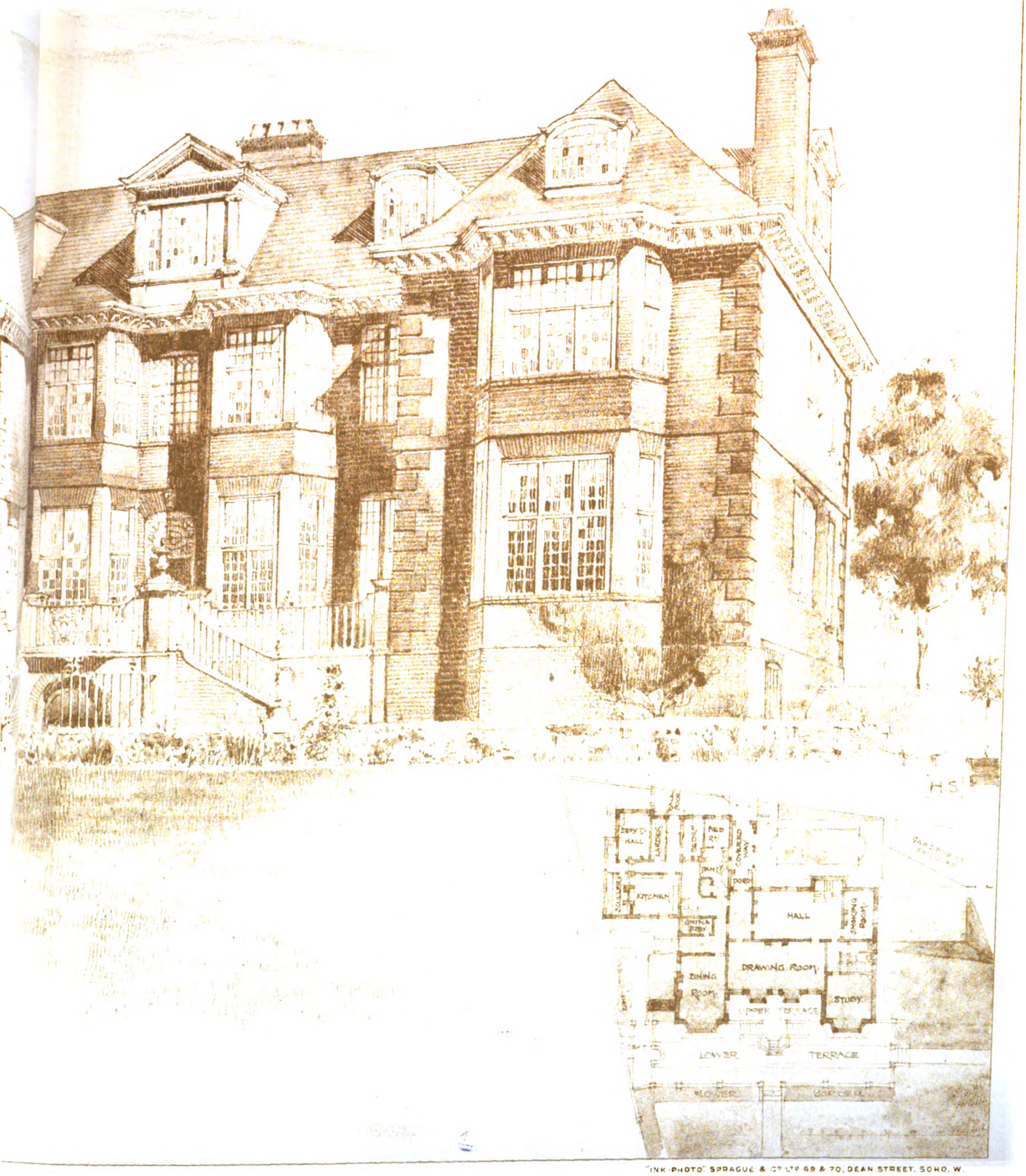
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VIEW FROM THE SOUTH-EAST

Edward Warren Archt March 1915

(Royal Academy Exhibition, 1915.)

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Wilson, J.	Artists' Rifles.
Wilson, J. W. G., 2nd Lieut.	A.S.C.
Wilson, Percy	R.G.A., West Lancs.
Wilson, Ralph	H.A.C.
Wilson, R. W.	R.A.M.C.
Wilson, S.	Northern Cyclists' Batt.
Wilson, W. D.	Engineer Fortress Company.
Winch, A.	Leeds City Batt.
Winder, F. A.	R.G.A.
Wingate, Alex., 2nd Lieut.	9th Glasgow Batt., H.L.I.
Winser, B. C., 2nd Lieut.	Infantry.
Winship, B., 2nd Lieut.	4/1st Cheshire Field Co., R.E.
Wire, L. T., Lieut.	11th Batt. Hants Regt.
Wood, H.	Univ. and Public Schools Corps.
Wood, T. S., 2nd Lieut.	R.F.A.
Woodroffe, Norman F., Lt.	Q. Victoria's Rifles (wounded).
Woods, Frank	Royal Engineers.
Woodside, D. C.	5th Scottish Rifles.
Woodward, Frank, L.-Corpl.	R.A.M.C.
Wornum, G. G., 2nd Lieut.	3rd Batt. Durham L.I.
Worthington, J. H., Lieut.	1st Batt. Manchester Regt.
Wratten, E. L.	R.A.M.C.
Wroe, S.	19th Batt. Manchester Regt.
Wunsch, A. S., 2nd Lieut.	2nd W. Lancs., R.F.A.
Wyatt, P. H., Lieut.	A.S.C.
Wyld, R. S. B.	R.N.A.S.
Wyllie, R. T. M.	London Scottish (wounded).
Wyllie, W. B., Officer Commanding	5th Co. Forth, R.G.A.
Yetts, L. M., Capt.	5th Royal West Surrey.
Young, C. J. M., Sapper	Royal Engineers.
Young, G. C., Cadet	R.M.C., Sandhurst.
Young, Graham C.	9th Batt. H.L.I.
Young, J. R., Lieut.	A.S.C.
Young, Thos. P. W.	H.L.I.

SUPPLEMENTARY LIST.

To the Previous Names the following Additions and Corrections should be added:—

Adams, A. D., 2nd Lieut.	7th Batt. Northumberland Fus. (Wounded.)
Anderson, H. C., Co.-Q.-M.S.	A.S.C.
Archer, H. De B., 2nd Lt.	R.F.A.
Archer-Betham, A.	2/7th Batt. Lancashire Fus.
Armistead, R. B.	Territorial Force.
Baily, B. E., Major	7th Batt. Sherwood Foresters.
Baily, B. W. S. S., 2nd Lieut.	Wiltshire Regiment.
Barber, C., Sergt.-Major	R.A.M.C. Field Ambulance.
Barker, Harold W.	
Barlow, George, Corpl.	6th Manchester Regt. (Killed.)
Basevi, J., Lieut.	50th Canadian Division.
Bausor, T. P.	Territorial Force.
Benison, N. S.	1/15th London Regt. (Wounded.)
Benson, H. C., Lieut.	9th Batt. Rifle Brigade. (Killed.)
Blackwell, C. C.	4th Batt. Leicester Regt.
Bluhm, Q. M., Capt.	8th Manchester Regt. (Wounded.)
Bone, J. C.	9th Royal Scots.
Booker, G. A., Corpl.	4th Batt. York and Lancs. Regt.
Boshier, G. E., 2nd Lieut.	5th Worcester Regt.
Bowen, A. J., Lieut.	Welsh Army Corps.
Bowie, G. P., Lieut.	5th Batt. 2nd Infantry Canadian Force. (Died of Wounds.)
Bowman, H., 2nd Lieut.	11th K.O.Y.L.I.
Bramwell, Guy, 2nd Lieut.	Northumberland Fusiliers.
Bridges, E. J., Lieut.-Col.	Royal Engineer Services.
Brierley, J., Lieut.	R.N. Div., Engineering Unit.
Brown, Robert	9th Royal Scots.
Button, C., 2nd Lieut.	34th Div. R.E., 207 Field Co.
Cale, C. H. Vernon	
Calvert, A. C., Corpl.	Royal Engineers.
Calvert, C. H., 2nd Lieut.	R.H.A.
Carswell, J. J., 2nd Lieut.	10th Cameronians. (Killed.)
Cawkwell, R.	4th Batt. York and Lancs. Regt.
Chappell, A. E. W., L.-Corpl.	24th County of London. (Killed.)
Chipling, S. L.	Motor Patrol.
Chippendale, H. M.	Yorks Hussars.
Christie, J.	London Scottish.
Clark, James	Lothian and Border Horse.
Clark, Robert	Lothian and Border Horse.
Clark, W. J.	4th Batt. Northumberland Fus.
Clarke, H. C. Chatfield	Artists' Rifles.
Clarke, J. A.	R.A.M.C.
Clephane, J.	Royal Engineers.
Codwell, C. J. M.	20th Batt. Royal Fusiliers.
Cooper, J. H., Major	5th Royal Scots.
Couston, J. W.	Royal Engineers.
Craig, John	16th Royal Scots.
Crowe, J., 2nd Lieut.	East Yorks Regt.
Cubey, J. B., Capt.	23rd Batt. Northumberland Fus.
Curwen, T. S., 2nd Lieut.	Loyal North Lancs. Regt.
Davies, E., 2nd Lieut.	5th Batt. Welsh Regt.
Davies, I. P. W., Lieut.	R.F.A.
Davies, Mason	
Dawson, W. F., 2nd Lieut.	16th West Yorks Regt.
Denton, H.	Sanitary Co., R.A.M.C.
Dick, R. Burns, Capt.	Tynemouth R.G.A.
Doll, M. H. C., 2nd Lieut.	13th Hussars. (Wounded.)
Dotchin, F. E., 2nd Lieut.	6th Batt. Northumberland Fus.
Ducken, Sub-Lieut.	R.N.V.R. (Killed.)
Dyson, V.	Royal Engineers.
Eaton, G. M., 2nd Lieut.	10th Batt. North Staffs. Regt.
Edwards, C. R.	20th Batt. Royal Fusiliers.
Edwards, J. R.	R.G.A.
Farrow, J. W. H.	South African Overseas Contingent.
Fenbow, T.	London Sanitary Co.
Fincham, E., 2nd Lieut.	12th Essex Regt.
Flaws, L. R.	East Lancs. R.E.
Forbes, W. A. Stanhope, 2nd Lieut.	D.C.L.I.
Forsyth, E. L.	Royal Engineers.
Foster, L., 2nd Lieut.	Leeds "Pals" Batt.
Fowler, W., Capt.	4th Batt. York and Lancs. Regt.
France, G. H. Q.	Artists' Rifles.
Francis, H.	Sherwood Foresters. (Killed.)
Fraser, Gilbert, Capt.	1st City Batt. King's Liverpool Regt.
Fraser, J. L. H.	9th Royal Scots.
Gammie, H. F., Sergt.	9th Royal Scots.
Geddes, J. M.	R.F.A.
Gill, H. P., 2nd Lieut.	7th Northamptonshire Regt.
Goddard, H. L., Major	4th Batt. Leicester Regt.
Gottwaltz, P., Capt.	South Wales Borderers.
Griffiths, W.	Royal Engineers.
Groves, F. N., Lieut.	Monmouthshire Regt. (Killed.)
Gunn, Edwin T.	R.N.V.R. (Anti-Aircraft).
Haird, T. W.	A.S.C.
Hall, Carby R., Lieut.	W.R. Div., A.S.C.
Hall, M. A., Lieut	8th Lincs. Regt.
Harris, L. Y., 2nd Lieut.	12th Batt. Sherwood Foresters.
Harrison, H. St. J.	O.T.C.
Hassall, J., Lieut.	R.N. Div., Engineering Unit (Invalided.)
Hayton, A. J.	10th Batt. S. Lancs. Regt.
Hill, C. E.	1/2nd London Sanitary Co.

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Hinton, John B.	
Holbrook, A. L., 2nd Lieut.	10th Batt. Suffolk Regt.
Holcroft, H. Roy.	
Holmes, E. M., Capt.	4th Batt. York and Lancs. Regt.
Holroyd, F.	R.A.M.C. Field Ambulance.
Hopkinson, J. K.	11th Hussars.
Houston, J. W.	Lothian and Border Horse.
Houston, Robert	Lothian and Border Horse.
Howard, Leslie	
Hunter, G. E., Capt.	Northumberland Fusiliers. (Killed.)
Hunter, J. P., Corpl.	R.A.M.C.
Hyde, R. R. W., Sergt.	14th Batt. Royal Sussex Regt.
Ingleton, D. F., Lieut.	R.F.A.
Jessop, B., 2nd Lieut.	King's Royal Rifles.
Johns, M.	2nd Monmouthshire Regt.
Jonnson, Arthur N.	
Johnson, Henry A.	
Kay, George	9th Royal Scots.
Kinch,	Gloucester Yeomanry.
King, C. F. A.	
Knowles, W. H., Capt.	1st Northumbrian Brigade R.F.A.
Laidlay, J. C., 2nd Lieut.	Black Watch.
Langham, G. D.	4th Batt. Leicester Regt.
Lawrence, J. K., Lieut.	1st Edinburgh Batt.
Lawton, W. V.	Yorks Dragoons.
Laxton, J. W., Staff-Sergt.	R.A.M.C.
Lennox, H., 2nd Lieut.	7th West Yorks Regt.
Lewis, L., Regt. Q.M.S.	Pembroke Yeomanry.
Lindley, John	
Logan, J., Corpl.	Northumbrian Howitzer Brigade.
Long, G. E.	Mechanical Transport.
Love, R. M.	Derbyshire I.Y.
Low, John B.	9th Royal Scots.
Lusby, A. M.	R.N.V.R. (Anti-Aircraft).
Mackay, Donald A.	9th Royal Scots.
Mackie, Donald M.	9th Royal Scots.
Maltby, C. B., Sapper	Royal Engineers.
Marchington, J. E.	4th Batt. York and Lancs. Regt.
Mauchlen, R., 2nd Lieut.	Durham L.I. (Wounded.)
Melhuish, J. B., Lieut.	4th Batt. Leicestershire Regt.
Milburn, S. W., 2nd Lieut.	3rd Northumbrian Brigade R.F.A.
Milburn, W., Jun., Lieut.	3rd Northumbrian Brigade R.F.A.
Millar, T.	R.A.M.C.
Mills, W. S., Lieut.	10th Batt. Leicestershire Regt.
Morgan, E.	Glamorgan Yeomanry.
Morley, Eric, Hon. Lieut.	Inspector of Works, R.E.
Morrey, Percy	3/1st Batt. E. Lancs. R.E.
Morton, J. S.	9th Royal Scots.
Moscrop, W. N. J., Lieut.	5th Batt. D.L.I.
Needham, T. G.	R.N.V.R. (Anti-Aircraft).
Newland, F. L., Lieut.	2nd Monmouthshire Regt.
Newton, Norman	East Lancs. R.E.
Orton, W.	Leicestershire R.H.A.
Paterson, Gilbert L.	4th Batt. York and Lancs. Regt.
Paterson, H. F.	H.A.C. (Killed.)
Paulden, W.	Univ. and Public Schools Corps.
Paxton, James	R.F.A.
Pearson, Eric L.	
Portsmouth, O. S., Lieut.	1st Welsh Royal Fus.
Potts, G., Q.-M.-S.	West Riding Div., R.E.
Prichard, W. J., Capt.	Brecknock Batt.
Pringle, J. C.	9th Royal Scots.
Ramsden, E., 2nd Lieut.	13th West Yorks Regt.
Reavell, Geo., Jun., Lt.-Col.	7th Batt. Northumberland Fus.
Reid, George	9th Royal Scots.
Reid, R. S., Lieut.	R.F.A.
Reynold, E.	R.F.A.
Richardson, J. S., Lieut.	8th Royal Scots.
Riley, H. G.	Inns of Court, O.T.C.
Robb, E. A. G., Sergt.	9th Royal Scots.
Roberts, R. G., Sergt.	Sheffield Batt. York and Lancs. Regt.
Robinson, H., Sapper	Royal Engineers.
Robinson, P. G.	Inspector of Works, R.E.
Rule, R. S.	R.N.A.S.
Sainsbury, F. G., 2nd Lt.	Royal Engineers.
Sanville, G.	Royal Fusiliers.
Saunders, B. R.	
Savage, A. E.	4th Batt. Welsh Regt.
Schyff, R. C. Vander	German West African Contingent
Skill, E. C.	R.N.V.R. (Anti-Aircraft).
Skinner, T. A., 2nd Lieut.	3rd Batt. Gloucester Regt.
Smart, G., Sergt.	Essex Yeomanry. (Died.)
Smith, Eric, Sergt.	West Riding Div., R.E.
Smith, J. Edward	
Stanton, A. E.	12th Batt. London Regt. (Killed.)
Stonehouse, C.	11th Batt. E. Lancs. Regt.
Stroud, G. M.	Inns of Court, O.T.C.
Sykes, M. N.	Sanitary Co., R.A.M.C.
Tabberer, Lieut.	4th Batt. Leicester Regt.
Tansley, V., 2nd Lieut.	8th West Yorks Regt.
Taylor, C. N.	R.A.M.C.
Tennant, S. L.	East Lancs. R.E.
Thomas, S. K.	Royal Engineers.
Townsend, G. V.	C.P.O., R.N.V.R. (Anti-Aircraft).
Toy, Leonard, Sapper	Royal Engineers.
Underhill, Collingwood	
Wallis, C.	Yorks Hussars.
Ward, E. E.	Sheffield Batt. York and Lancs. Regt.
Waterhouse, F. A., Sapper	West Riding Div., R.E.
West, W. G., Bombardier	R.G.A.
Westcott, George	Manchester Regt.
Whitebread, L. G.	6th Batt. Manchester Regt. (Died.)
Whitehead, L.-Corpl.	R.A.M.C.
Whitehead, F.	R.A.M.C. Field Ambulance.
Wicks, H. Graham	
Wilson, D.	24th Batt. Canadian Infantry.
Wilson, J. H.	12th Batt. Sherwood Foresters.
Woodhouse, C. H., Lieut.	3rd Batt. N. Staffs Regt.
Wrigglesworth, F. J., Sapper	Royal Engineers.
Wright, F. O., Capt.	7th Batt. Sherwood Foresters
Wright, H. C., Capt.	7th Batt. Sherwood Foresters.

We shall be glad to receive from our readers authentic information of further additions and corrections which will be published in future issues of "The Architect."—Ed.

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(*Continued from page* 328.)

needed for the fluctuations in temperature of the heating agent and the cooling mediums, for N. and N.E. aspects, excessive exposure, altitude, the class of building materials, construction; the position selected for the boiler, pipes, radiators, &c. These, and many other things, will need some degree of intelligence if failures are to be avoided.

We will now apply the formulæ mentioned by Mr. Avery to the room in which the tests were taken, and then compare the calculations and formulæ set out in this paper.

What amount of radiation is required to obtain 60° inside, when 30° outside, with water 160° Fah. average temperature, in a room (mentioned on pp. 2-5 of Mr. Avery's paper) of the following dimensions, assuming the heat emission from radiator (H) to be 1.5 B.T.U.?

	Feet super.
Glass in windows ...	48
Door	21
Walls (outer)	252
Walls (inner) 18 in.	180
Walls (inner) 9 in.	159
Ceiling	266
Floor	266
Capacity	2,700 cubic feet×2 changes of air

SUMMARY.

Comparison of the results by the various authorities and formulæ.

Examples Nos.	Professor Rietschel. 1	A. H. Barker. 2-3	Professor Carpenter. 4-5	W. Jones 6-7
Glass losses	10	10	14	10
Outside walls	14	13	19	13
Inside walls	10	8	13	11
Ceiling	5	9	10	11
Floor	2	5		5
Door	1			
Cubic capacity—air ...	20	18		19
Interrupted heating ...	12	9		
Exposure	2			
Total ft. super radiation	76	72	56	69

The information given herein is based upon practical experience more than upon theory. The formulæ and examples throughout are for the temperatures stated, Examples Nos. 6 and 7 have no special allowance for exposure or interrupted heating, and I am of opinion that they would give satisfactory results for this room, or for similar buildings of ordinary construction. They must, however, be accepted as a basis only, and not as a guarantee of success where adverse or exceptional conditions prevail.

After a general discussion Mr. Naylor (Vice-President) followed with a short contribution entitled

"A COMPARISON BETWEEN FORCED FIRING AND SLOW COMBUSTION."

IN selecting a boiler, the final selection should always be based upon fuel efficiency, not only for the ultimate saving to the user, but as a national economy. Coal is the life of industry and the life of the nation. A stoker who is fined for turning out too much smoke is fined not only as an offence against the public health, but as a useless waste of a national and irreplaceable commodity.

An installation working under slow combustion rarely emits smoke, shows a greater profit to the engineer, and saves money for the user, resulting in satisfaction to all parties.

The following figures give the results of two tests by the same boiler working under the same conditions. Details of boiler:—

Heating surface all fire and water covered, 166 square feet.

Grate surface, 14 square feet.

Iron chimney, 15-inch diameter, 30 feet high, showing when working a pressure of one-twelfth of an inch of water.

The test was by free steam evaporation into atmosphere with anti-priming pipes, the steam being quite dry to the touch.

Cold water was fed direct into the boiler through a Kennedy water meter.

A good body of bright fire was built up with full chimney draught, so that the results obtained may be considered the maximum attainable with natural draught.

The boiler under these conditions evaporated:—

900 lb. of water from 50°=1,015,200.

Heat transmission, 6,115 B.T.U. per square foot.

Fuel consumption, 182 lb. per hour.

Fuel consumption per square foot of grate surface, 13 lb. per hour.

Fuel efficiency, 5,580 B.T.U. per lb.

This cannot be considered an economical fuel efficiency, but it only serves to illustrate the extravagance of forced firing.

The same boiler was again tested without any alteration, but under slow combustion. A good fire was accumulated and then allowed to burn without any attention whatever for five hours, with the following result:—

Evaporation,	1st hour	500 lb.
,,	2nd ,, ...	550 ,,
,,	3rd ,, ...	600 ,,
,,	4th ,, ...	600 ,,
,,	5th ,, ...	600 ,,

Average hourly evaporation, 570 lb. from 50°=642,960 B.T.U.

Fuel consumption, 67 lb. per hour.

Fuel consumption, 4.78 lb. per square foot of grate.

Fuel efficiency, 9.447 B.T.U. per lb.

Heat transmission, 3,873 B.T.U. per square foot.

The fuel used was ordinary gas coke, which, at the present time, is none too good, and cannot therefore be considered as having a calorific value of more than 12,000 B.T.U. per lb.

The above result of 9,447 B.T.U. gives an efficiency of 79 per cent., whereas the forced firing only gives 46½ per cent. efficiency. If we consider this in money, the one gives the user 15*s.* 6*d.* in the pound, and the other only 9*s.* for each pound spent in fuel. There is no investment in the world so good as a boiler which gives the highest efficiency.

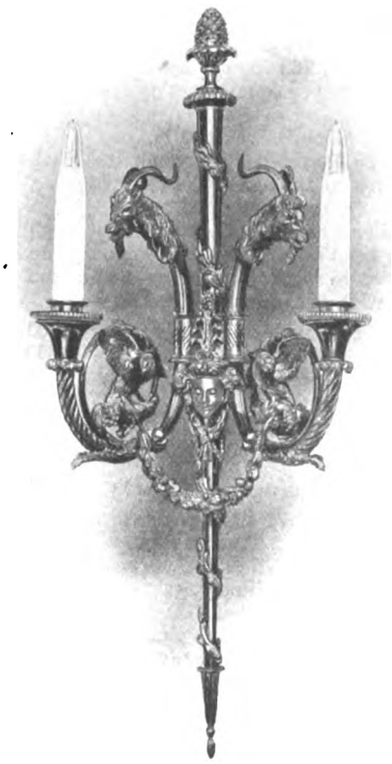
The test was carried out in a very open shed, and the boiler was not covered. The heat losses on this account have not been calculated for in the above results.

The makers of wrought-iron boilers have agreed to a uniform rating, and all recent catalogues are now tabulated on a uniform system, and I shall be glad to give any assistance to bring about the same desirable state of affairs with the makers of cast-iron sectional boilers.

The time should not be far distant when the considered opinions and recommendations of this Institution will be accepted by the Government, architects, and users. Such a condition, while not eliminating competition, would afford all-round protection conduce to better schemes, and give the greatest protection to the purchaser.

The meeting concluded with the reception of a report by Mr. Arthur H. Barker, B.A., B.Sc., arising out of the research work at University College, London. It appears that one of their two scholarships is held by a Japanese gentleman, and the other is still vacant owing to lack of a suitable applicant. Mr. Barker comments severely on the lack of enterprise among our young men in the heating and ventilating profession which could cause them to neglect such an opportunity of obtaining a first-class university training for practically nothing. The same slackness is revealed by the fact that the London County Council classes in this subject have had to be closed down owing to an insufficient number of students. Not a single student has ever applied either before or since the war to follow the four-year course arranged with so much care. This disappointing lethargy was, he thought, probably due to the fact that a person can get along in heating engineering on a very small modicum of knowledge, his deficiencies not being conspicuously shown up in commercial life owing to the low standard of requirements which unfortunately prevails. "Until the younger members of the profession," declared Mr. Barker, "come to appreciate the fact that knowledge is power in a very real sense, or until some of the older members discover the great commercial value of a highly educated and properly trained man, I am afraid that the rate of progress cannot be as great in this country as it has been abroad. One cannot help hoping that one of the results of this war will be to wake up all trades in this country to an appreciation of the value of science in all industries. It is in my view largely due to the fact that the Germans have appreciated this more than ourselves that their relative industrial strength is due. Their appreciation of the importance of science in everything

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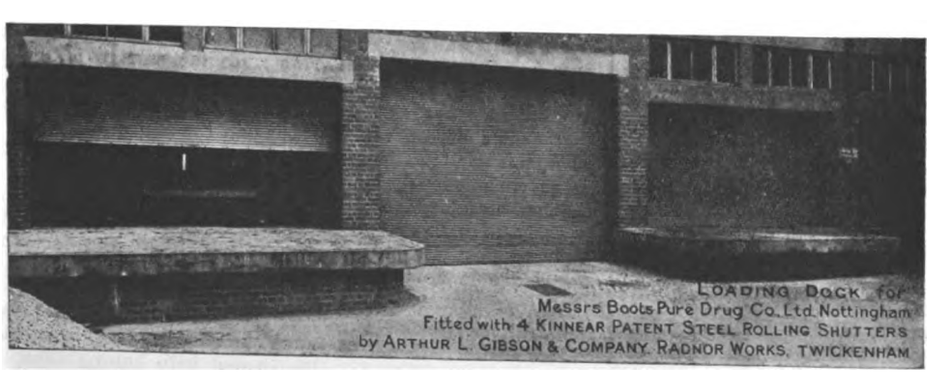
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extends not only to their Army, but to every branch of every one of their industries." Professor Barker said he would like to see a system of apprenticeship revived with attendance at a full course of scientific instruction as one of the conditions of indenture—as is already done in the case of gas apprentices by the Gas Light and Coke Company. The one essential for any advance in the future is that the younger members entering the profession should be properly educated for their duties. Solely by that means can the level of the Germans be reached. The activity of mind and keenness of perception which alone enable advances to be made can only be secured by training the mind. It ought never to be argued that as the heating engineer is not a chemist and not an electrician, therefore he need not study physics, chemistry, and mathematics, the fact being that the exercise of the mind on those subjects is necessary to enable a man to understand the subtle problems that the heating engineer of the future will have to tackle. It is not merely a case of fixing the size of a pipe or the number of square feet of surface in a radiator. A man must be equipped above and beyond that if he is going to advance the subject.

INSTITUTION OF SANITARY ENGINEERS.

The opening sessional meeting of the Institute of Sanitary Engineers was held on October 6 at Caxton Hall, Westminster, S.W. It took the form of an informal reception by the Chairman of Council, Mr. Nandy Hoskins, and a concert. There was a most satisfactory attendance.

In the course of the musical programme Mr. A. P. I. Cotterell, M.I.C.E., F.R.San.I., the President, gave a few particulars as to the standing and progress of the Institute. Membership was not only maintained under the present difficult circumstances, but is still increasing, and now numbers 518. The qualifications of those admitted are also rising, and the Institute is attaching to itself a class of men, especially from abroad, of whom they could well be proud. The finances have likewise improved year by year, so that they can look with confidence to their future as one of the permanent societies of their profession. The programme of the forthcoming session was particularly interesting from the fact that they were to be almost entirely addressed by members of the chemical profession, some of them of considerable eminence. Perhaps this was another symptom of the times, for to-day civil engineering is practically at a standstill, and many of those formerly busily engaged in it are using their activities elsewhere. Hence it comes about that the voice of the chemist, the pioneer, can be heard. Great changes will certainly be a result of the present world upheaval. When the war is over is it likely that we shall return to the point at which we left off, or to the pace at which we previously ambled? So much world wealth will have disappeared that many of the social improvements formerly in hand, or contemplated, may have to be set aside for years. On the other hand, such may be the condition of the people that wealth, which under normal circumstances would have poured into certain industrial channels, will perforce have to be devoted to sanitary improvement and to the rebuilding of the health of the people. If such is the case, and for his part he believed it would be, there is a field opening before sanitary engineers than which what could be finer? It may be that the profession will be pioneers in a new campaign of social improvement in the regeneration of a race decimated and broken down by the effects of the war. It may be that they, in their small part, will have their chance of rebuilding the world on a firmer basis, and with better prospect of continuance than they could have thought possible had it been told them in the days of peace.

THE LATE MR. RICHARD CHARLES SUTTON.

Founder of a well-known Nottingham firm of architects and surveyors, Mr. Richard Charles Sutton died at his residence, Carisbrook House, Southey Street, Nottingham, on Monday, aged eighty-one.

The deceased gentleman came of an old local family, a family closely identified with two phases of the city's life—its literary circles and its building developments. The late Mr. Sutton was educated at Ockbrook School, afterwards going to London for his professional training. The late Mr. S. S. Teulon, who was then pre-eminent in Early Gothic revival architecture, was his tutor. For many years Mr. Sutton was one of the leading architects of the lace city, and many of the churches, schools, and other public buildings were designed by him. He held a seat on the City Council from 1887 to 1901, when he retired. He was also a prominent Freemason.

GLASGOW INSTITUTE OF ARCHITECTS.

The quarterly general meeting of the Glasgow Institute of Architects was held on the 13th inst. in the Secretary's chambers, 115 St. Vincent Street, Mr. John Watson, F.R.I.B.A., President, in the chair. The Secretary reported the proceedings of the Council with regard to the matters dealt with since the previous general meeting. The following were the principal items: (1) It had been agreed to recommend the Corporation to retain the Tolbooth Steeple as it stands, and a letter was forwarded to the Town Council to that effect; (2) the plan prepared for the Royal Infirmary in connection with the lay-out of Cathedral Square had been considered along with the plan recommended by the Institute and approved of by the Corporation. The Council was unanimously of opinion that the plan submitted by the Royal Infirmary was totally inadequate, and a letter was forwarded to the Town Council recommending that the original plan be adhered to; (3) congratulations were sent to Professor Bourdon, director of the Glasgow School of Architecture and captain in the French Army, on his being gazetted as a Knight of the Legion of Honour; (4) appointment of Messrs. John Fairweather, A.R.I.B.A., and John Stewart as governors on the board of Haldane's Trust; representatives to the Royal Technical College Committee on Architecture were also appointed; (5) the President explained the proceedings which had taken place in regard to regulations for contracts for building works in Scotland, and stated that the proposed regulations issued by Sir G. R. Askwith would be considered at a conference to be held in Edinburgh on October 21.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Cheshire.

Crewe.—The "Belle Vue" Inn: additions and alterations, for Mr. W. J. Vernon.

The "Hop Pole" Inn: alterations, for Messrs. Greenall, Whitley & Co., Ltd.

Cornwall.

Crowlas.—Dairy, for the Ludgvan Dairy Company, Ltd. Mr. H. Maddern, architect, Morrab Road, Penzance.

Mabe.—Wesleyan Church.

Cumberland.

Carlisle.—Pair of houses, Low House Farm, for the Ecroyd Trustees.

Derbyshire.

Chesterfield.—Proposed Trades Hall, for the Chesterfield and District Trades and Labour Council.

Dorset.

Poole.—House, Chaddesley Estate, for Messrs. Burridge & Bovill.

Essex.

Southend-on-Sea.—St. Erkenwald's Church: vestries.

Hampshire.

Bournemouth.—St. Michael's Home, Church Road: additions, for Miss Lomby.

"Ardvar," Boscombe Hill: alterations, for Mr. A. A. Beynon.

"Cashmere Lodge," Alumdale Road: additions, for Mr. P. S. J. Perceval.

House, Ashbourne Road, for Mrs. Toothill.

No. 121 Christchurch Road: additions and alterations, for Mr. G. C. Bateman.

No. 178 Christchurch Road: additions, for Messrs. Sutton & Co.

"Charlmont," Drummond Road: additions, for Mr. C. W. Cox.

"The Lodge," Firbank Road: additions, for Mr. E. E. Northover.

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ENGLAND—*continued.*

BOURNEMOUTH—*continued.*

Three houses, Glen and Wilfred Roads. Mr. C. T. Miles, F.R.I.B.A., architect, "Observer" Chambers.

Nos. 367 and 368 Holdenhurst Road: alterations. Messrs. J. & W. Hayward, builders, Washington Avenue.

House, Keswick Road, for Mr. H. J. Hands.

"Hinton Firs," Manor Road: additions, for Miss Osborne.

Two houses, Portland Road, for Mr. C. Snelling.

Four houses, Ripon Road, for Mr. W. W. Baker.

No. 26 Wimborne Road: additions and alterations, for Mr. A. Manchester.

The Markets, Holdenhurst Road: alterations, for the Bournemouth Markets and Cold Storage Company, Ltd.

St. Clement's School House, St. Clement's Road: additions.

Portsmouth.—St. Patrick's (new) Church, Milton.

KENT.

Bickley.—Golf Club House, Golf Road. Mr. G. W. Hart, architect.

Folkestone.—Garage, Plain Road: additions. Mr. T. E. Moody, architect.

No. 27A Guildhall Street: alterations. Mr. J. Vant, architect.

Gillingham.—The "Cannon" beerhouse, Garden Street, Brompton: rebuilding.

LANCASHIRE.

Bacup.—Plantation Mill: additions, for Messrs. J. Hoyle & Sons, Ltd.

Barrow-in-Furness. — R.C. Schools. Church Lane, Walney.

Cleveleys.—Hydro: extension. Mr. T. G. Lumb, architect, 26 Birley Street, Blackpool.

Horwich.—Cottage Hospital, Brunel Street: extensions.

LINCOLNSHIRE.

Grantham.—Motor garage, East Street, for Messrs. Martin, Pitt & Sneath.

Seven houses, Charles Street: additions, for Mr. T. H. Lawson.

Lincoln.—Engine house, Firth Road, for Messrs. Ruston, Proctor & Co.

Two houses, St. Catherine's Road. Mr. F. W. Horton, builder, Shakespeare Street.

Workshop, Cecil Street. Messrs. Thornhill Bros., builders, Steep Hill.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Proposed secondary school for girls.

OXFORDSHIRE.

Banbury.—Three houses, Warwick Road, for Mr. W. Broughton.

SOMERSET.

Burnham.—Proposed isolation hospital.

Taunton.—Munition Works: girls' accommodation, for Messrs. Newtons, Ltd.

House, Leslie Avenue, for Mr. F. Tottle.

WARWICKSHIRE.

Bedworth.—Two houses, Newtown Road, for Mr. A. Orton.

Coventry.—Four houses, Queensland Avenue, for Messrs. Aston & Greenhill.

Six houses, Queensland Avenue, for Mr. T. Seal.

Three houses, Broadway, for Messrs. Cox & Co.

Four houses, Hearsall Lane, for Mr. T. F. Bird.

House with shop, Holbrook Lane, for Mr. W. Backhurst.

Two houses, Lythall's Lane, for Mr. D. Payne.

Two houses, Lythall's Lane, for Mr. T. W. Roulson.

House, Broomfield Place, for Mr. W. Morris.

House, Cross Road, for Mr. A. Ely.

Two houses, Edgewick Road, for Mr. D. Payne.

Three houses, Foleshill Road. Messrs. H. Goode & Son, builders, Holmsdale Road.

Two houses, Harefield Road, for Mr. B. Gilbert.

Two houses, Harefield Road, for Mr. R. E. Matthews.

Eight houses, Kirby Road, for Mr. W. Morris.

House, Shaftesbury Road, for Mr. A. J. Crump.

Foleshill.—Four houses, Little Heath Road, for Mr. Bass.

YORKSHIRE.

Bridlington.—Villa, Lamplugh Road. Mr. H. T. Field, architect, Custom House Buildings, Whitefriargate, Hull.

Hemsworth.—Thirty-six houses, for the Dearne Valley Colliery Company.

New Earswick.—School: proposed extension.

Richmond.—The "King's Head" Hotel: alterations.

Ripponden.—Chapel Field Mill: extension, for the Ryburn Mill Company.

Rossington Colliery.—Parsonage.

Royston.—House, Church Street, for Mr. A. Hinchliffe.

Tadcaster.—Slaughterhouse, Lock Lane, for Mr. J. Schofield.

Unstone.—Church (£3,550). Mr. J. D. Webster, architect, 19 St. James' Street, Sheffield.

WALES.

Aberystwyth.—Two houses, Infirmary Road, for Miss Jones (London); also

House and two shops, North Road.

Beulah.—Council school.

Neath.—Institution for the feeble-minded.

SCOTLAND.

Ayr.—Carnegie Library: children's department.

Ayton.—Proposed smallpox hospital.

Clarkston.—Villa, Busby Road, for Messrs. A. Mickel & Co.

Villa, Overlee, for Mr. S. W. Clark.

Dundee.—Post Office: extensions (£20,000).

Dunfermline.—Premises, Elgin Street: extension, for Scottish Central Rubber Works.

Edinburgh.—No. 77 South Bridge: reconstruction. Messrs. Scott & Campbell, FF.R.I.B.A., architects, 60 Castle Street.

Ellon.—Shop and warehouse, Ythanbank. Mr. J. Cobban, architect, Haddo House.

Giffnock.—Villa, Otterburne Drive, for Mr. J. Allan (Glasgow).

Kilbirnie.—Public hall and offices (£4,000).

IRELAND.

Carrick-on-Shannon.—Tuberculosis dispensary.

Dublin.—Picture theatre. Mr. T. F. Macnamara, architect, Great Brunswick Street. Messrs. H. & J. Martin, contractors, Grand Canal Street.

BRITISH PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 13,483. June 2, 1914.—William Farrington, 70 Grosvenor Terrace, Camberwell, S.E. Padlocked fastenings.

20,071. Dec. 28, 1914.—A. E. Heley, 71 Buxton Road, Luton, and A. W. Oakley, 40 South Road, Luton. Safety self-locking fastening.

21,381. Oct. 22, 1914. H. R. Prosser, "Woodstock," Poplar Road, King's Heath, Birmingham. Connection or union for gas or other pipes or fittings.

22,157. Nov. 7, 1914.—A. P. Brooke, "Sandringham," Poole Road, Branksome, Dorset. Piling or stacking of timber.

22,330. Nov. 10, 1914.—Alonzo Felton, of Gilmour Door Company, Ltd., 51 Berners Street, W. Construction of doors or the like.

3,230. March 1, 1915.—George Browning, 150 North Woodside Road, Glasgow. Cowls for use in connection with chimneys, ventilating shafts, and the like.

4,137. March 16, 1915. G. F. Strawson, St. Andrew's Works, Horley, Surrey. Glazing bars.

21,725. Nov. 11, 1914.—Thos. Quinlan, 19 Broadhurst Gardens, South Hampstead, N.W., and Samuel Diggle, 84 Angell Road, Brixton, S.W. Improvements in or appertaining to water-closet seat guards.

9,191. June 22, 1915.—W. B. Caswell, 19 Vernon Avenue, Newport, Rhode Island, U.S.A. Window blind-roller brackets.

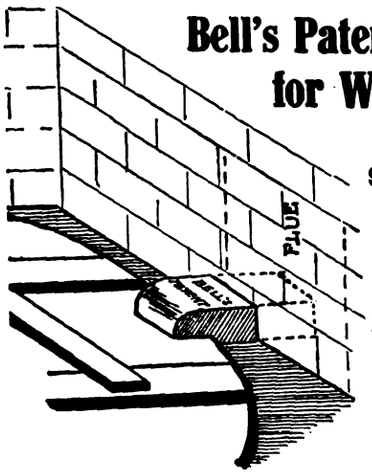
11,269. Aug. 5, 1914.—J. H. Noonan, 234 Hobson Street, Auckland, New Zealand. Gas cooking apparatus.

1,140. Jan. 23, 1915.—Dated under International Convention April 17, 1914. Fritz Vogelsang, 44/45 Grolmannstr, Berlin-Charlottenburg, Germany. Safety locks.

2,464. Feb. 16, 1915.—W. D. Henderson, 487 Monadnock Building, San Francisco. Clamps and tools for applying them.

Any of the above specifications may be obtained from J. D. Roots & Co.

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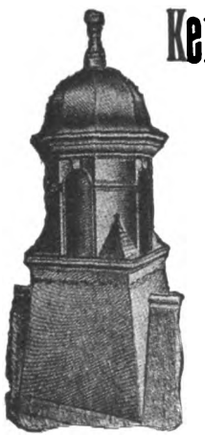
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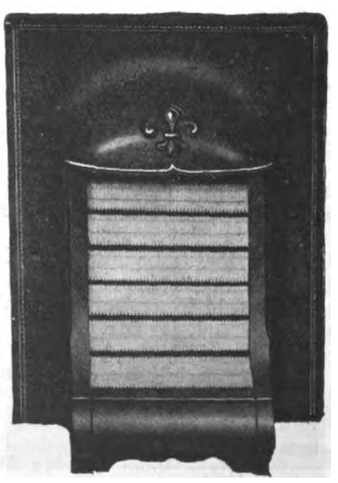
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, November 1.

Royal Institute of British Architects : Opening Address of the Session by the President, Mr. Ernest Newton, A.R.A., at 8 P.M.

Victoria and Albert Museum : University Extension Lecture V. on "The Renaissance Palaces and Villas of Rome," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Tuesday, November 2.

Institution of Civil Engineers : Opening Address of the Session by the President, Mr. Alexander Ross, at 8 P.M.

Wednesday, November 3.

Royal Archæological Institute : Paper entitled "The Will of Master William Doune, Archdeacon of Leicester," by Mr. A. Hamilton Thompson, M.A., F.S.A., in the Apartments of the Society of Antiquaries, Burlington House, W., at 4.30 P.M.

Institution of Sanitary Engineers : Paper entitled "Disposal of Night Soil by Distillation," by Mr. J. Menzies, at Caxton Hall, S.W., at 8 P.M.

St. Paul's Ecclesiological Society : Paper entitled "The Oxford Movement and its Effect on Churches," by Mr. Clifton Kelway, F.R. Hist. Soc., at 8 P.M.

Thursday, November 4.

British Museum : University Extension Lecture VI. on "The First or Early Period of Greek Architecture," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

BUILDING STONES OF QUEBEC.

WHILST we British architects have nothing to do in the way of normal or profitable work, we may very well turn our attention to questions for which we have no time under ordinary circumstances to seek an answer. We have been in the habit of using ornamental building stones, particularly marbles and granites, imported from many lands overseas. Belgium, France, Switzerland, Norway, Italy, Greece, Africa have all provided sources of supply and furnished us with many varieties of stone, which we have become accustomed to use for the sake of their beauty of appearance. What are the possibilities of substituting for these foreign sources the overseas Dominions of the British Empire?

A partial answer to this question may be obtained by a study of the recently issued report* by Dr. Wm. A. Parks, on the building and ornamental stones of the Province of Quebec. The investigation of the physical characteristics of the stones of the province by Dr. Parks is of a very thorough and satisfactory character, and includes the determination of (*a*) specific gravity, (*b*) weight per cubic foot, lbs. ; (*c*) pore space, per cent. ; (*d*) ratio of absorption, per cent., one hour; (*e*) idem, two hours ; (*f*) idem, slow immersion ; (*g*) idem, in vacuo ; (*h*) idem, under pressure ; (*i*) coefficient of saturation, one hour; (*j*) idem, two hours; (*k*) idem, slow immersion; (*l*) idem, vacuum ; (*m*) crushing strength, lbs. per square inch, dry; (*n*) idem, wet; (*o*) idem, wet after freezing; (*p*) transverse strength, lbs. per square inch; (*q*) shearing strength. lbs. per square inch; (*r*) corrosion test. loss or gain, grams per square inch ; (*s*) drilling factor. mm. ; (*t*) chiselling factor, grams. The volume, which comprises over 300 pages and numerous illustrations, gives detailed descriptions of the producing areas, of the individual quarries, and of the various stones, chemical analyses, explanation of quarrying methods, and statistics of prices and buildings constructed of the stone in question. In short, it is a most admirable conspectus of such information as can be expressed in print of the building stones of the Province of Quebec.

Marble occurs under two general conditions in the province, first, in the form of bands in the great Pre-Cambrian region of the north and in the narrower Pre-Cambrian belts of the Eastern Townships; second, in the form of metamorphosed zones in the sedimentary limestones of the Palaeozoic in the Eastern Townships and in the peninsula of Gaspé.

As an example of the first group of marbles we may take that now being worked by The Dominion Marble Company, Ltd., of Montreal. This is obtained from a quarry at South Stukely, about sixty miles from Montreal, and embraces several varieties of colouring, which are known as "Jaune royal," dark and light; "Rose royale," dark and light; "Vert royal"; "Light Vert royal"; "Violetta"; "Royal veined white"; "Royal Dominion blue."

Dark jaune royal is a fine-grained marble, delicately veined and spotted with shades of yellow. Through this ground-mass more pronounced veinlets of darker yellow and greenish tints are scattered irregularly. Considerable pyrites is present in places, but in others the mineral is practically absent. The weight per cubic foot is 173 lb., the pore space, per cent., 0.323; the crushing strength, dry, 17,450 lb. per square inch.

Light jaune royal is of a lighter yellow colour than the preceding, and shows the yellow clouding in a more banded manner. The darker yellow and greenish veinlets are practically absent, but the stone is traversed by light brownish grey to pink irregular bands, which are roughly parallel to the banding. This material is of exceedingly fine grain. Occasional narrow bands of pure white calcite of coarser grains are to be seen.

Dark rose royale consists of an exceedingly fine-grained base, varying from a light rose colour to a pinkish chocolate. This base is clouded with white and veined and spotted very delicately with chocolate colour. The whole is traversed by veinlets of white calcite. This is a very handsome and striking marble.

Light rose royale consists of a white, fine-grained base, slightly clouded with yellow, in which rose-coloured clouds appear at intervals. The general appearance of the marble is also affected by the presence of white blotches of slightly coarser grain. This light rose royale is a delicately tinted marble of refined character.

Vert royal is of coarser grain than the preceding marbles, but it is not coarse compared with ordinary crystalline limestone. The polished surface is practically all green in clouds and bands of different shades.

Violetta is a clouded marble in green, white, rose, and chocolate colours. The handsome appearance is increased by the presence of fine lines of brilliant golden yellow colour which cut through the rock in a reticulating manner.

Royal veined white is a marble of fine to medium grain, with a brilliant and glistening surface when polished; it is irregularly banded and clouded with a dark grey colour, which is generally called "blue" in the case of marbles, hence the stone is of colder appear-

* "Report on the Building and Ornamental Stones of Canada." Vol. III. Province of Quebec. By Wm. A. Parks, B.A., Ph.D. (Ottawa: Government Printing Bureau.)

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ence than any of the preceding. Royal Dominion blue is of the same class as "Royal veined white," but much more of the blue component is present and the contrasts between the blue and the white are more sharply defined.

Thus it will be understood that in this one quarry there exists a range of marbles of very different effects but of great beauty. Specimens of the light jaune royal, dark rose royale, vert royal, and royal Dominion blue may be seen in the window of the Quebec Government's show-room in Kingsway, London. An important point in considering the capability of a marble quarry is the size of the material it can produce. Our own Devonshire marbles, for example, are quite beautiful in colouring, but sizes frequently run very small. From the South Stukely quarry good solid slabs of vert royal have been cut, 8 feet by 4 feet, and slabs of jaune royal up to 11 feet in length by 6 feet wide. As regards price, the Dominion Marble Company's list of 1912 quotes for finished work, slabs, ¾ inch, pointed to size, polished one face, and boxed, $0.75 per square foot for royal veined white, $1.20 for royal Dominion blue, and $1.50 for their other varieties.

Metamorphic marbles of Palaeozoic Age comprise the stratified limestones of the Palaeozoic, which have been rendered crystalline in places by metamorphic agencies, and thus have been converted into true marbles. Marbles of this type are found in the Eastern Townships of Quebec, in formations of Cambrian, Ordovician, and Silesian Age. The more important occurrences are at Phillipsburg, a village in Missisquoi county and in the township of Dudswell. The Phillipsburg quarry is about forty miles from Montreal, and is worked by The Missisquoi-Lantz Corporation, Ltd., and its products may be taken as a leading example of the metamorphic Palaeozoic marbles of Quebec.

These marbles from Phillipsburg may be described generally as exhibiting various base tints of grey with greenish blotches and lines. There are a number of distinct beds in the quarry, some of which are of very little depth, but afford a considerable range of colour for slabs. In the Quebec Government's show-rooms are specimens of four of these, bearing the names of "Vert rose," "Sea green," "Mottled," and "Light grey."

Vert rose is one of the most highly-coloured of the Missisquoi marbles, with a light greenish fine-grained base, scattered through which are wide clouds of a mottled white and rose coloured type, which takes a most brilliant polish and from which the name of the variety is derived. The bed of this variety is only 9 inches deep.

Sea green consists of a very fine-grained white base, delicately coloured with yellowish green. Throughout this matrix a darker green occurs in clouds and contorted lines. This marble also comes from one of the thin beds, which in this case is 12 inches thick.

Mottled is found in a bed 11 feet 6 inches thick, and has a light greyish fine-grained base, spotted with white of a coarser crystallisation. The white portion occurs in rounded dots of a half-inch or more in diameter, and also in the form of irregular bands of about half an inch in diameter extending for several inches. The white part is not uniform opaque white, but shows darker spots owing to the presence of transparent calcite crystals. Fine lines of a yellowish colour are seen in places between the white and the grey components. In appearance this variety reminds us of some of our Derbyshire marbles.

Light grey resembles the variety described as "Mottled," but the grey matrix is lighter and the spots are smaller and farther apart. The arrangement of the lighter portions in bands as sometimes occurs in "Mottled" is not observed here. The fractured surface shows a very fine grain and occasionally a few glistening crystals, which are more plentiful in a variety known as "Dark grey." In places, however, the broken surface shows films of a greenish colouring material.

Dr. Parks gives full tables of the physical properties of two varieties of Missisquoi marble, from which, for comparison with the South Stukely marbles, we may take—weight per cubic foot, 169.273 and 169,161 lb.; pore space, per cent., 0.163 and 0.155; crushing strength, dry, 20,380 and 20,360 lb. per square inch. Prices for finished work, pointed to size, crated, polished one face, ⅞ inch thick, not over 6 feet long or 4 feet wide, per square foot are quoted for those we have described, Vert rose, $2.50; sea green, $2.00; mottled and light grey, $1.20.

(To be continued.)

NOTES AND COMMENTS.

The news from Venice this week that enemy aeroplanes dropped about a dozen bombs on the city last Sunday, and that one bomb struck the roof of the church of the Scalzi, bringing down the ceiling with its paintings by Tiepolo, shows the wisdom of the extensive and thorough preparations of which an account was given in the "Corriere della Sera," but also indicates the impossibility of making everything safe. The general principle observed in the Venetian measures for preventing damage to the art treasures of the city has been to remove to a place of safety everything movable, and to protect as far as possible everything immovable by sand, by masonry, by armour-plate. But though the fate of the Scalzi church may show that everything cannot be protected, this does not lessen the force of the impassioned appeal that Sir Claude Phillips makes in the "Daily Telegraph" for an approach by our authorities in London to the thoroughness with which the Italians not only in Venice, but in other of the art treasure-cities of their country, have taken such precautions as are possible. Sir Claude contrasts this Italian thoroughness with the supine neglect of our authorities. After reference to the National Gallery, the British Museum, and the Victoria and Albert Museum, Sir Claude proceeds:

"The preservation of Westminster Abbey is, however, of still greater importance to the nation, and, indeed, to the whole Anglo-Saxon race. Here the Dean and Chapter are, as is generally understood, supreme in authority, and therefore responsible—as those are who assume, and administer, a great trust. What have they done for the protection of England's most precious shrine, the greatest material record of her glory, the glorious church which is, indeed, a history of the English people? As to such measures as may have been taken for the protection of the exterior, and for actively combating the aerial attacks of the enemy, we cannot speak. But even to the most casual visitor it must be evident that in the interior absolutely nothing has been done, or even attempted; unless, indeed, we place to the credit of the authorities the removal of the Chair of State and of the interesting archaic portrait of Richard II. While the authorities at Venice have been prodigal of precautions in their enthusiastic resolve to protect St. Mark's—and the precious interior not less than the precious exterior—those with whom rests the responsibility for the protection of the Abbey are seemingly content to look on and do nothing in the hope that England's proverbial luck may once again serve her.

"In the centre of Henry VII.'s Chapel the great tomb of Henry VII. and his Consort, by Torrigiano, still remains utterly exposed, and it is, moreover, encircled with a veritable forest of most inflammable woodwork, in the shape of carved and fretted stalls, with all their accessories, and the decaying banners which project from them. What the explosion of an incendiary bomb here would mean we leave to the imagination of our readers. It would very possibly entail the destruction not only of the whole chapel, but of the whole Abbey. And then there are in the choir of the main church tombs even more precious to England; a group of Royal sepulchres which are without a parallel at present in Europe. For not even at Saint-Denis, as it is now, not even at Santa Chiara in Naples, where are the magnificent tombs of the Anjou kings, are they to be matched. What as to these? Are we to attempt absolutely nothing to protect the shrine of Edward the Confessor, the tombs, so precious artistically as well as historically, of Henry III., of Eleanor

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of Castile, of Edward I., of Philippa of Hainault, of Edward III., of Richard II., of Henry V.—of William de Valence and Aylmer de Valence? Are we to look on impassive and inert, leaving it to fate to decide whether a most precious heritage of the Anglo-Saxon race shall be utterly ruined and obliterated? Are we here again to be told to 'wait and see'—to await, it may be, some hideous catastrophe, some awful enveloping destruction by licking tongues of fire of all that we hold most precious, most vital as a record of our country's greatness? Are we even at this moment of supreme necessity to suffer that those who are responsible to *us*—the nation—who are trustees for a treasure and a record that is *ours*—shall remain silent, ignoring the storm that rages without, and seemingly deeming themselves accountable only unto themselves?

"Let them speak, even if there be no comfort in their words; let them speak, even if it be to confound us! If we have been in the wrong, we will humbly crave forgiveness; if we have been in the right—and of this we have now furnished the strongest proof—then we must insist, we must by all means in our power compel, that, without losing a moment, decisive action be taken. Have the Universities no word to say on such a subject as this; or the Royal Academy; or the corporate bodies of architects; or the British Academy; or the time-honoured societies for the promotion of art and science? Why do the Society of Antiquaries, the National Art-Collections Fund, the Burlington Fine Arts Club remain mute and officially unresponsive? How futile will their activities appear in the future if now, at this moment of supreme anxiety, held back by trivial considerations of routine and etiquette, they are content to look on as mere spectators while risks are run which may result in irreparable disaster. The men in authority who through irresolution, through lack of courage to take the initiative and throw down merely conventional obstacles, fail to impose such drastic measures as the imminent danger calls for—these men, however high in place and in the esteem of their fellow-countrymen, will be held to have betrayed a most sacred trust, and their great refusal will be recorded against them, and for ever remembered in bitterness, by their brothers."

No doubt the approval by the Education Committee of the London County Council granted to a proposal or offer by the Professional Classes War Relief Council was influenced by the consideration that the L.C.C. would be put to no expense in the matter, but we may also give that body credit for wisdom in permitting the introduction of mural decoration into London schools. The Professional Classes War Relief Council asked that, with a view to finding work for artists in distress through the war, the walls of certain Council schools, to be selected by the Council, might be decorated with friezes and panels, the decorations to remain the property of the Council. It was proposed that the subjects and designs should be supervised by an expert committee of artists, and submitted for approval to the Council before being carried out. In order that the work of the schools might not be interfered with, the friezes and panels would be executed away from the school buildings, and fixed during the school vacations.

A correspondent of the "Manchester Guardian" writes: "Sphagnum moss was once used as a builder's sundry, to give an ugly name to a beautiful thing. All along the border of the West Riding the old houses are roofed with grey stone slates. Moss was collected and forced into the joints of the slates. As the rain ran down the roof the moss absorbed the moisture, and the swollen moss made a water-tight joint. Besides serving this purpose, the rich green, velvety lines of moss bejewel the grey slates and make a pleasing picture worthy of being introduced by the architect of our garden cities."

Architects are not infrequently troubled by cantankerous clients who take advantage of the view so dear to the legal mind that the architect's duty is to ensure a strict adherence to the letter of a contract, but it is comforting to know that the House of Lords in a Scots case has recognised that an architect should have some discretion. The objection seems to us in this case to have been particularly trivial, for the employers declined to pay the balance of the mason's contract, £633, because the "rybats"—Anglice, jamb-stones—were not according to the specification.

The Lord Chancellor, in moving that the appeal be dismissed, said the real question related to the size of certain rybats that had been used in the building. In the circumstances of this case, he thought it was within the architect's authority to arrange these rybats as he thought best. He would clearly have no power to change one class of material for another. He could not introduce stone in the place of brick, or *vice versa*, but in a matter which was essentially a detail of constructional arrangement, the Lord Chancellor was unable to see why the power which the architect must have exercised if the size of the rybats could not be made to agree with the plans and which he might have to exercise if he used the powers expressly reserved to him, could not also be exercised so as to make the construction more uniform, and, as he thought, more satisfactory than that which would have resulted from close adherence to the measurements in the schedule.

If it had not occurred in Ireland, where they always have a "graivance," we might quote recent proceedings of the Tyrone County Council as an illustration of the absurdity of local affairs being regulated by general politics. In a discussion as to the confirmation by the Council of the appointment of a clerk of works by the architect one opposing Councillor delivered himself of this gem: "He did not know any of the candidates, but he felt that there should be some consideration for people of different sections. They could not be giving everything to one side without a protest from the other. When the position of architect had been given to one side it was only reasonable to expect that if a suitable person from the other side applied for the position of clerk of works he should get it."

The decision in the Hull drainage case does not abolish the time-honoured rule that a pipe that drains one house is a "drain," but a similar pipe that drains two houses is a "sewer." For by the Kingston-upon-Hull Corporation Act of 1903 (section 49) it was enacted that where two or more houses were connected with a single private drain which conveyed their drainage into a public sewer the Corporation should have all the powers of compelling to repair contained in the Public Health Act of 1875; that section 19 of the Public Health Amendment Act should no longer apply to Hull, and that for the purpose of this section the expression "drain" included a "drain used for the drainage of more than one building, whether owned or occupied by the same person or not."

An excellent exhibition of posters is now open at the Glasgow School of Art, and we commend to our readers some of the remarks made at the opening ceremony. Mr. F. Harcourt Kitchin, in declaring the exhibition open, said he could not claim to know everything about posters, which in their essence were a very high form of advertising, but he took a great interest in them, and he had tried in a humble way to grasp the essentials in connection with the art of posters. It seemed to him that the first essential was the education of the public, which needed education, even in Glasgow. Next, he thought they should aim at educating those who had money to give forth their money to those who had it not, and especially to the deserving class represented by the students who were present that day. After all, when they talked about educating the public in the high mission of art it was really the public's money that they wanted. In poster work they were up against what was really the money test, for however delightfully they might design

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a poster, and however charming it might be as a picture, unless the poster when it was put on the wall sold the goods, they would not get the money of the public a second time. Therefore he would suggest to them that in designing posters they should concentrate their attention on what were really the essentials, which meant that they should give in the simplest way possible a single idea so emphatically that it might be detected instantly by a person who knew as little about art as he did. The letterpress should be as subdued as possible, and form an essential part of the design. It should not be left to some other person to put it on afterwards. Thirdly, they should so study the technical part of the business that they would command in the open market the highest possible fees, and than that he could wish them no better fate.

Mr. Anning Bell, in proposing a vote of thanks to Mr. Kitchin, alluded to the function of the poster as an educational force, which, he thought, was not sufficiently realised. There were many people who could not be lured into an art gallery, and who had seen more pictures in the form of posters than in any other form of art. Consequently they were greatly influenced by the pictorial posters which they saw around them in the streets, and from that point of view it was important that each design should constitute a worthy piece of decoration. The exhibition, he hoped, would be a stimulus to their students, and he trusted that at the end of the session they would have another exhibition, one which would show some of the results of their study of the works now displayed.

The old dodge of preventing a residence or erection from being a "building" by putting it on wheels has failed once again at the Birkenhead County Police Court, where the Wirral Rural District Council succeeded in their contention that a bungalow, made in sections and put together on a team waggon, was a "temporary building."

We regret to read what the "Sheffield Daily Telegraph" has to say concerning the drawings submitted for the 1915 competition for the "Alfred Chadburn" Prize, which are on exhibition in the Museum of the Sheffield Technical School of Art. Few in number, and almost entirely marked by the characteristics of the commonplace, and in some cases by downright vulgarity of design, the exhibits, if they in any way represent the younger craftsmen and designers of the city, form an unwelcome commentary to the effect that the aims and ideals of the commercial workshop may be taken as the limit of the outlook of our young art workers.

Some years ago the competition was reorganised: its rules and regulations were re-cast. But not until this year has the assessor considered himself justified in making an award, and on this occasion the standard achieved has only, in his opinion, merited the granting of one prize instead of two.

The competition is open to any designer or craftsman resident in Sheffield, whether connected with the School of Art or not. Yet in spite of so wide an appeal, the number of entries this year, and we believe last year, too, is, to say the least, discouraging.

WAR ITEMS.

Munition work as we understand it to-day—that is to say, work in the shop and the factory—forms by no means the only opportunity for skilled engineers to serve their country at the present time. The Navy is always glad of their services. Transference from munition work to the Navy is not encouraged, but amongst those skilled mechanics who are not at the present moment engaged on munition work there must be many who would be glad to find an outlet for their technical abilities by becoming members of the Naval Service. It is felt that if the opportunities and the requirements which exist in this respect were more fully known there would be no difficulty in keeping up the supply of electrical artificers and engine-room artificers who are needed by the Navy.

This branch of Naval Service has many attractions, not the least of which is the comparatively high pay received, which amounts on entry to nearly £2 per week, and which may be considerably improved by good service. Thus with infinitely better pay and prospects than those of the ordinary seamen, they have the same opportunity for seeing the world and for leading a fine, healthy open-air life, at the same time as driving their own trade which usually keeps them so closely confined to the workshop. As they enter the Navy with the rating of chief petty officers they mess in the chief petty officers' mess, and have the same opportunities for leave when in port. If they are sufficiently skilled they are drafted at once on to a battleship and come immediately to grips with their work. Their opportunities for advancement to commissioned rank are excellent.

During the period of the war men are accepted between the ages of 21 and 45. For rating as engine-room artificers, men who have experience and are competent workmen in the trades of engine fitters and turners, copper smiths, boiler makers, and engine smiths are required. An examination is usually held on entry, but in the case of a candidate who holds a Board of Trade Certificate as a first-class or second-class engineer and can produce certificates of character and ability from the works in which he has learnt his trade, exemption is granted. Engine-room artificers are entered as chief petty officers, a position which carries with it many privileges. A free kit is provided on entry and this, of course, is not the ordinary Bluejacket's slacks and jumper, but what is known in the Navy as "fore and aft 'rig,'" that is to say, a peak cap and reefer jacket.

Fitters, turners, and instrument makers are required by the Navy as electrical artificers. Candidates for this rating are accepted for the period of the war between the ages of 21 and 45. The pay is also the same as engine-room artificers, and an examination in fitting and turning or instrument making is imposed. Electrical artificers may be recommended for a practical course of training, which is carried out on board the *Vernon* which is moored at Portsmouth, or on board the *Defiance* at Devonport. During this period they may be accommodated either on board ship or in the magnificent naval barracks which are situated in these two towns.

This avenue to naval life is certainly one not to be neglected by the skilled engineer. There is no quicker way of entering for actual service, and none which secures immediately better pay, prospects, and position. Entering the Navy as a chief petty officer he immediately steps into a rank which takes the man who enters as ordinary seaman many years to achieve.

ILLUSTRATIONS.

HOUSE AT BICKLEY, KENT.

This house was built on the top of Chislehurst Hill, the main aspect being south-east.

The style of the house is the traditional Surrey farmhouse of the fifteenth century. The roofs were covered with hand-made rough texture tiles, the brickwork being a dark brindle colour; the half-timber work over the entrance front is composed of solid oak beams, and is constructional as well as ornamental. The windows are glazed with leaded lights in iron casements. The large common room is panelled in oak.

The work was executed by Mr. F. P. Duthoit, of Bromley, from the designs of Messrs. Harold Bailey, F.R.I.B.A., and Douglas Wood, A.R.I.B.A.

A BLOCK OF THREE COTTAGES AT NETHERNE ASYLUM, SURREY.

The illustration shows a block of three cottages recently erected at the above for the Surrey County Council. Owing to the very exposed position of the cottages, the walls were built hollow and sash windows were used in preference to casements. The roofs were covered with plain red tiles, the walls being finished in rough cast.

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An attempt was made in the design to get away from the "terrace" effect. The contract was carried out by Messrs. Limpus & Son, of Kingston Hill, the architects being Messrs. Harold Bailey, F.R.I.B.A., and Douglas Wood, A.R.I.B.A.

LANCASTER HOUSE, REGENT'S PARK.

THIS house, which is built in the style of the William and Mary period, is erected on the Howard de Walden estate on the north side of Albert Road, Regent's Park, and is one of the few terraced houses to be seen in London, the ground floor being raised 10 feet above the roadway.

A distinctive character has been given to the house by the wise selection of coloured bricks, tiles, and old stones, both for external and internal decorative effects, combined in the interior with panelling in rough oak.

The front elevation, which has the great advantage of facing Regent's Park, is centred by columns of Portland stone with carved capitals, and supporting the central capital are two stone carved figures. The balustrade is made up of rough, hand-made 2-inch bricks with wide natural mortar joints, and Roman tiles, with a coping of ridge tiles, entirely in keeping with the texture and colour of the walls of the house. For paving the terraces broad stones and tiles have been used, and a similar arrangement of wide stones and tiles has been adopted in laying out the garden in front. For the north or entrance side a fine effect has been obtained by having tall pilasters in Portland stone. Here, too, there are moulded capitals, which break the otherwise severe austerity of the entrance front. In the planning of the house particular attention was given to the question of light, so that a noticeable feature is the number of large windows, which give light to all sides.

The interior strikes the architectural note of a dignified simplicity. The hall, which leads on to the terrace through folding doors, composed entirely of glass, is panelled up to frieze level in unpolished oak, with moulded ceiling. An important feature here is the chimney-piece and inglenook, with decorative effects produced by the harmonious use of bricks and tiles. For the chimney-breast thin bricks have been used, also in the side recesses; and on the hearth big square tiles of a red hue have been laid. The drawing-room is furnished in flat white enamel. A severe simplicity characterises the treatment carried out in the dining-room. The walls are plastered, and are left in a roughly levelled state, with a dado of oak panelling, the beams dividing up the walls reaching to the ceiling. One side of the walls is fitted with dresser-sideboard, from the architects' designs. The floor-boards are unpolished, and the ceiling is panelled with stout oak beams in keeping with the Jacobean style adopted here. Oak panelling up to frieze height marks the wall treatment in the staircase hall, and the partiality for unpolished wood is evidenced in the twisted balustrading for the staircase. The bedrooms which are reached by the hall staircase lead out into a wide corridor. In keeping with the general scheme adopted throughout the walls of the bedrooms are panelled. A chimney-piece, carried out somewhat on the same lines as was adopted for the one in the dining-room, is to be seen in the study.

Of interest at the present time is the design of the mantelpiece for the day nursery. The shelf is supported by two conventionally constructed figures of Guardsmen, represented as wearing bright-red coloured tunics and black busbies.

The house was erected from the designs and under the direction of Mr. Fairfax B. Wade, F.R.I.B.A., and Mr. Charles Frankiss, Licentiate R.I.B.A., by Messrs. Perry & Co., of Victoria Street, Westminster, who were also responsible for all the interior decorations and fittings; the electric lighting by Messrs. Tredegars, Ltd., of 7 Brook Street, London, W.

THE ninety-seventh Session of the Institution of Civil Engineers will be opened on Tuesday, November 2, at 8 P.M., when Mr. Alexander Ross, President, will deliver an address, and will present awards made by the Council for papers read and discussed or otherwise dealt with during the past session.

THE Illuminating Engineering Society will hold the first meeting of the Session at the House of the Royal Society of Arts, 18 John Street, Adelphi, London, at 8 P.M. on Tuesday, November 23, when a discussion on "The First Report of the Departmental Committee on Lighting in Factories and Workshops" will be opened by Mr. Leon Gaster.

GLASS.

Written and Illustrated by James Scott.

INGREDIENTS AND MANUFACTURE.

GLASS forms so large and important an adjunct to all kinds of erections that it deserves the full consideration which I propose to apply to it.

Notwithstanding the universal commonness of this substance, it is really a marvellous compound. Few solids are transparent, and it would be somewhat difficult to explain—at any rate in a sufficiently popular manner—the reason why light can penetrate it. But of the supreme value of windows we are all aware. They are, as it were, the eyes of buildings; and without them indoor life would be almost impossible.

Chemically speaking, glass is a silicate of either calcium (*i.e.* lime) and potassium or calcium and lead, and so on, according to the ingredients used in its manufacture.

When soda is substituted for potash the compound becomes a silicate of calcium (or lead, &c.) and sodium.

It has been stated, with slight variations, that the origin of glass was due to the results of men lighting a large fire in the desert for various purposes. Some of the glowing wood ashes yielded their potash carbonate to the melted sand, among which must have been limestone scraps. These, combined together, and when cooled, produced a coherent mass of transparent substance—glass, really. It is not worth while discussing this matter, which was feasible, yet hardly likely, considering the intense heat necessary to fuse the ingredients which constitute the substance.



FIG. 1.—The circle is equal to a pinhole, greatly magnified, and shows grains of sand, one of the constituents of glass.

No true glass can be made without sand, which is fundamentally an oxide of silicon. The latter is the most abundant solid element in the earth, and is invariably combined with oxygen, and other minor ingredients. When isolated, silicon is a very hard, black semi-crystalline element. Quartz is one of the purest oxides of silicon. Its transparency is in great contrast with the opacity of its chief constituent when separated. In sand, the quartz is united with small portions of other minerals, these serving to differentiate it from other oxides of silicon, such as that already named, and flint.

It is customary for chemists to speak of an oxide of silicon as silica, silex, or silicic anhydride. Rock crystal is its purest form, and this occurs crystallised in six-sided prisms. Sand, flint, and quartz are called silica, &c., for convenience. Silver sand, which is the cleanest and best, is used for the superior classes of goods; while ordinary sand forms the basis of commoner kinds. In any case it has to be well washed to free it from all traces of salt.

The following are the chief recipes for the composition of glass:—

Bohemian glass.—Sand, 100 parts; carbonate of potash, 35 parts; limestone or chalk, 15 parts.

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Green glass.—Sand, 100 parts; carbonate of soda, 17 to 25 parts; limestone or chalk, 35 parts.

Crown, sheet, and plate glass.—Sand, 100 parts; limestone, 35 parts; sulphate of soda, 36 parts; broken glass (this is called cullet), 30 to 100 parts.

Flint glass.—Sand, 100 parts; carbonate of potash, 33 parts; red lead, 30 parts; nitre (*i.e.*, nitrate of potash), 5 parts.

It is quite usual to prefer the carbonate of potash to soda salts, with which I shall not concern myself. The microscopical appearances of these ingredients are shown in figs. 1, 2, and 3.

The furnaces in which glass is made differ in structure, but follow a general plan, as a rule. Broadly speaking, a furnace is circular, and has eight openings in the sides, one for the passage of the fuel, and the remainder for the convenience of the workmen in handling the glass. Air enters by means of an underground tunnel into which ashes and debris are discharged. In one kind open pots or crucibles are arranged in the erection beneath a fire-brick dome, which reverberates or reflects the heat down on to the finely crushed and well mixed substances. The molten glass is stirred meantime, and more powder added as required. The resultant mass is then allowed to rest and cool, impurities and gas bubbles rising to the surface, whence they are skimmed off.

Another style of furnace is similar in a general way, but the pots are elongated, and their necks are directed against the wall-openings. The glass is thus kept free from contamination by furnace dust.

Producer gas has been found one of the most efficient means for heating the furnaces.

A variation of the preceding structures is that in which cheap window glass is manufactured. It consists of fire-brick tanks under partitions in which the molten material flows, leaving considerable amounts of impurities—called glass gall—behind.

The colours of stained glass are produced by the incorporation of substances which to the layman would seem to have no power in this direction. For instance, when

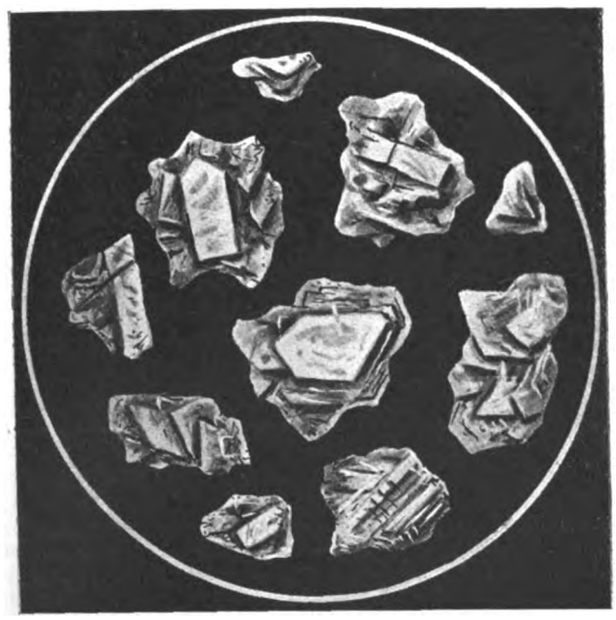


Fig. 2.—The circle is equal to a pinhole, greatly magnified, and shows grains of limestone, one of the constituents of glass.

gold or its salts, or copper sub-oxide (greyish red) is added to the molten mass it imparts a red tint to it. Silver or iron rust makes it yellow. For blue, cobalt oxide (which is greenish) is used. Manganese oxide (this is a black powder) renders the glass a beautiful amethyst hue. Chrome oxide or copper oxide yields green. By the use of platinum or iridium neutral or smoke shades are obtained. For black, compounds of manganese, copper, and iron are preferable, the assortment of colours being so dense that neither is predominant. Milk-white results from the action of either powdered bone earth, or meta-stannic acid, this last being a compound of tin and nitric acid.

For the preparation of plate glass the molten mass is poured over the surface of a table topped with iron or ganister, and rimmed round to the necessary depth. Great care has to be taken during the cooling process, because if done in the air the edges harden first and the glass is liable to crack spontaneously. It is an amazing fact that plate glass when simply air-cooled will suddenly explode and fall as mere powder, should an attempt be made to scratch it.

The glass is therefore annealed by being allowed to cool off in special ovens, where the temperature is gradually lowered. In this way automatic damage is prevented.

Large panes of glass are made in the following manner. A long blowpipe—a plain tube nearly the height of a man

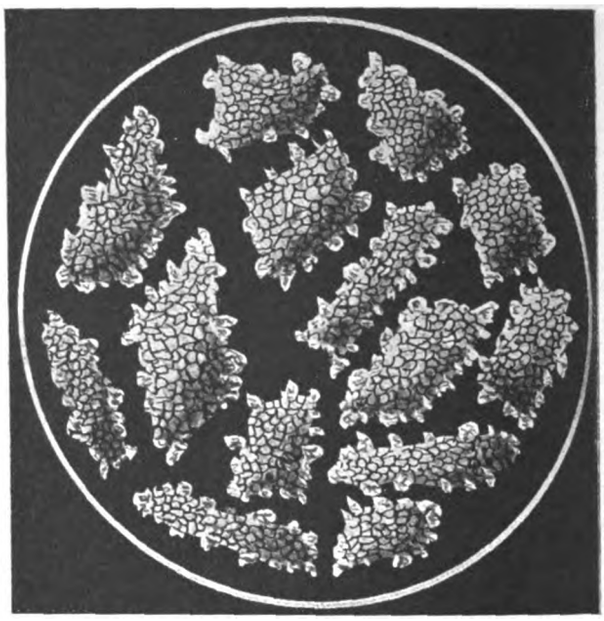


Fig. 3.—The circle is equal to a pinhole, greatly magnified, and shows grains of carbonate, one of the constituents of glass.

is caused to take up a ball of molten glass, which is expanded to a hollow globe by air from the operator's lungs. The globe is rolled to and fro over a table, so as to compress it into a cylinder, the flat side of which runs in line with the tube. Then a wetted piece of iron is run round the bottom and the top which is still in contact with the blow-pipe, and along from one end to the other. Upon reheating it, fractures occur along the wetted parts, and the cylinder is detached with circular end openings, and a longitudinal split, the object resembling in shape a linen cuff. While hot it is spread open and pressed into a flat state, being then rectangular.

Sheet glass can easily be cut with a pair of scissors if it is held in a tub of water during the operation. Naturally, the severance is not so neatly accomplished as when a diamond or wheel is used in the ordinary way; but no spreading fractures occur, and the experiment generally surprises anyone who undertakes it for the first time. The raw edges left afterwards are slightly rough—that is all the difference discernible in glass thus treated.

I wish to point out that I have made pieces of glass from some of the sand, potash, and lime recipes given. The respective mixtures were placed in the clean bowls of large tobacco clay pipes, the mouths of which were plugged with fireclay. The bowls were then inserted between the bars of a grate containing a good, even burning fire, and left thus for a day. When withdrawn, cooled, and broken, the pipes yielded very clear glass lumps.

(*To be concluded.*)

THE COMMON AIMS OF SCIENCE AND HUMANITY.*

By Professor Arthur Schuster, D.Sc., Sc.D., LL.D., D. ès Sc., F.R.S., President.

Under the influence of the diversity of pursuits imposed upon us by the conditions of modern life, different groups of the community—men of business, men of science, philosophers, or artists—have acquired detached and sometimes opposing interests. Each group, impressed by the import-

* Abstract of address to the British Association for the Advancement of Science, Manchester.

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ance of its own domain in the life of the nation, and focussing its vision on small differences and temporary rivalries, was in danger of losing the sense of mutual dependence. But in the shadow of a great catastrophe it has been brought home to us that the clash of interests is superficial, and the slender thread of union which remained has grown into a solid bond. What is the fibre from which the bond is twined? Patriotism may express its outward manifestation, but its staple is the mental relationship which remains continuous and dominant even in normal times, when each of us may peacefully go to earn his living and enjoy the course of his intellectual life.

Outwardly the community is divided into heterogeneous elements with mental attitudes cast in different moulds, and proceeding along separate roads by differing methods to different ideals. Yet as we eliminate the superficial, and regard only the deep-seated emotions which control our thoughts and actions, the differences vanish, and the unity of purpose and sentiment emerges more and more strongly. Mind and character, no doubt, group themselves into a number of types, but the cleavage runs across, and not along, the separating line of professions.

When we glance at the various occupations of the working parts of a nation, comprising the student who accumulates or extends knowledge, the engineer who applies that knowledge, the geologist or agriculturist who discloses the store of wealth hidden in the soil, the commercial man who distributes that wealth, it seems as if we ought to be able to name the qualities of intellect and temperament which in each pursuit are most needed to carry out the work successfully. But on trying to define these qualities we soon discover the formidable nature of the task. Reasoning power, inventive power, and sound balance of judgment are essential attributes in all cases, and the problem is reduced to the question whether there are different varieties of the attributes which can be assigned to the different occupations.

Among all subjects mathematics is perhaps the one that appears most definitely to require a special and uncommon faculty. Yet, Poincaré—himself one of the clearest thinkers and most brilliant exponents of the subject—almost failed when he attempted to fix the distinguishing intellectual quality of the mathematician. Starting from the incontrovertible proposition that there is only one kind of correct reasoning, which is logical reasoning, he raises the question why it is that everybody who is capable of reasoning correctly is not also a mathematician, and he is led to the conclusion that the characterising feature is a peculiar type of memory. It is not a better memory, for some mathematicians are very forgetful, and many of them cannot add a column of figures correctly; but it is a memory which fixes the order in which the successive steps of reasoning follow each other without necessarily retaining the details of the individual steps. This Poincaré illustrates by contrasting the memory of a chess-player with that of a mathematician. "When I play chess," he says, "I reason out correctly that if I were to make a certain move I should expose myself to a certain danger. I should therefore consider a number of other moves, and, after rejecting each of them in turn, I should end by making the one which I first contemplated and dismissed, having forgotten in the meantime the ground on which I had abandoned it." "Why, then," he continues, "does my memory not fail me in a difficult mathematical reasoning in which the majority of chess-players would be entirely lost? It is because a mathematical demonstration is not a juxtaposition of syllogisms, but consists of syllogisms placed in a certain order; and the order in which its elements are placed is much more important than the elements themselves. If I have this intuition—so to speak—of the order, so as to perceive at one glance the whole of the reasoning, I need not fear to forget its elements: each of these will take its right place of its own accord without making any call on my memory."

Poincaré next discusses the nature of the intellectual gift, distinguishing those who can enrich knowledge with new and fertile ideas of discovery. Mathematical invention, according to him, does not consist in forming new combinations of known mathematical entities, because the number of combinations one could form are infinite, and most of them would possess no interest whatever. Inventing consists, on the contrary, in excluding useless combinations, and therefore: "To invent is to select—to choose." . . . "The expression 'choose' perhaps requires qualifying, because it recalls a buyer to whom one offers a large number of samples which he examines before making his choice. In our case the samples would be so numerous that a lifetime would not suffice to complete the examination. That is not the way things are done. The sterile combinations never present themselves to the mind of the inventor, and even those which momentarily enter his consciousness, only to be rejected, partake something of the character of useful combinations. The inventor is therefore to be compared with an examiner who has only to deal with candidates who have already passed a previous test of competence."

Enough has been said to show that the peculiar powers necessary for the study of one of the most abstract branches of knowledge may be expressed in terms which bring them down to the level at which comparison with other subjects is possible. Applying the same reasoning to other occupations, the same conclusion is inevitable. The commercial man, the politician, and the artist must all possess the type of memory best suited to concentrate in the field of mental vision their own experiences as well as what they have learned from the experience of others; and, further, they must have the power of selecting out of a multitude of possible lines of action the one that leads to success; it is this power which Poincaré calls the inventive faculty.

The argument must not be pushed too far, as it would be absurd to affirm that all differences in the capability of dealing successfully with the peculiar problems that occur in the various professions may be reduced to peculiarities of memory. I do not even wish to assert that Poincaré's conclusions should be accepted without qualification in the special case discussed by him. What is essential, to my mind, is to treat the question seriously, and to dismiss the vague generalities which, by drawing an artificial barrier between different groups of professions, try to cure real or imaginary defects through plausible though quite illusory remedies. All these recommendations are based on the fallacy that special gifts are associated with different occupations. Sometimes we are recommended to hand over the affairs of the nation to men of business; sometimes we are told that salvation can only be found in scientific methods—what is a man of business, and what is a scientific method? If you define a man of business to be one capable of managing large and complicated transactions, the inference becomes self-evident; but if it be asserted that only the specialised training in commercial transactions can develop the requisite faculties, the only proof of the claim that could be valid would be the one that would show that the great majority of successful statesmen, or political leaders, owed their success to their commercial experience. On the other hand, every method that leads to a correct result must be called a scientific method, and what requires substantiating is that scientific training is better than other training for discovering the correct method. This proof, as well as the other, has not been, and, I think, cannot be given. When, therefore, one man calls for the conduct of affairs "on business lines" and the other clamours for scientific methods, they either want the same thing or they talk nonsense. The weak point of these assertions contrasting different classes of human efforts is that each class selects its own strongest men for comparison with the weakest on the other side.

The most fatal distinction that can be made is the one which brings men of theory into opposition to men of practice, without regard to the obvious truth that nothing of value is ever done which does not involve both theory and practice; while theory is sometimes overbearing and irritating, there are among those who jeer at it some to whom Disraeli's definition applies: the practical man is the man who practises the errors of his forefathers. With refined cruelty Nemesis infects us with the disease most nearly akin to that which it pleases us to detect in others. It is the most dogmatic of dogmatics who tirades against dogma, and only the most hopeless of theorists can declare that a thing may be right in theory and wrong in practice.

Why does a theory ever fail, though it may be sound in reasoning? It can only do so because every problem involves a much larger number of conditions than those which the investigator can take into account. He therefore rejects those which he believes to be unessential, and if his judgment is at fault he goes wrong. But the practical man will often fail for the same reason. When not supported by theoretical knowledge he generalises the result of an observation or experiment, applying it to cases where the result is determined by an altogether different set of conditions. To be infallible the theorist would have to take account of an infinite number of circumstances, and his calculations would become unmanageable, while the experimenter would have to perform an infinite number of

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experiments, and both would only be able to draw correct conclusions after an infinite lapse of time. They have to trust their intuition in selecting what can be omitted with impunity, and, if they fail, it is mainly due to the same defect of judgment. And so it is in all professions: failure results from the omission of essential considerations which change the venue of the problem.

Though theory and practice can only come into opposition when one of them is at fault, there is undoubtedly a constrast in character and temperament between those who incline more towards the one and those who prefer the other aspect: some like a solitary life at the desk, while others enjoy being brought into contact with their fellows. There have at all times been men predestined by nature to be leaders, and leadership is required in all branches of knowledge—the theoretical as well as the more active pursuits; but we must guard against accepting a man's estimate of his own power to convert his thoughts into acts. In the ordinary affairs of life a man who calls himself a man of action is frequently only one who cannot give any reasons for his actions. To claim that title justly a man must act deliberately, have confidence in his own judgment, sufficient tenacity of purpose to carry it through, and sufficient courage to run the unavoidable risks of possible failure. These risks may be trivial or they may be all-important. They may affect the reputation of one unit of creation or involve the whole life of a nation, and according to the greatness of the issue we shall honour the man who, having taken the risk, succeeds. But whether the scale be microscopic or interstellar, the essence of the faculty of blending theory and practice is the same, and both men of books and men of action are to be found in the philosopher's study and the laboratory, as well as in the workshop or on the battlefield. Modern science began, not at the date of this or that discovery, but on the day that Galileo decided to publish his Dialogues in the language of his nation. This was a deliberate act destined to change the whole aspect of science, which, ceasing to be the occupation of a privileged class, became the property of the community. Can you, therefore, deny the claim of being a man of action to Galileo, can you deny it to Pasteur, Kelvin, Lister, and a host of others? There are, no doubt, philosophers who cannot manage even their own affairs, and whom it would be correct to call pure theorists; but that proves nothing, because their defect makes them worse philosophers as well as worse citizens.

In his Presidential Address, delivered to this Association in 1899, Sir Michael Foster summarised the essential features of the scientific mind. Above all other things he considered that its nature should be such as to vibrate in unison with what it is in search of; further, it must possess alertness, and finally moral courage. Yet after enumerating these qualities, he arrives at the same result which I have tried to place before you, that there are no special peculiarities inherent in the scientific mind, and he expresses this conclusion in the following words:—

"But, I hear some one say, these qualities are not the peculiar attributes of the man of science, they may be recognised as belonging to almost everyone who has commanded or deserved success, whatever may have been his walk in life. That is so. That is exactly what I would desire to insist, that the men of science have no peculiar virtues, no special powers. They are ordinary men, their characters are common, even commonplace. Science, as Huxley said, is organised common-sense, and men of science are common men drilled in the ways of common-sense."

If there be no fundamental difference in the mental qualifications which lead to success in our different occupations, there is also none in the ideals which move us in childhood, maintain us through the difficulties of our manhood, and give us peace in old age. I am not speaking now of those ideals which may simultaneously incite a whole nation to combined action through religious fervour or ambition of power, but I am speaking of those more individual ideals which make us choose our professions and give us pleasure in the performance of our duties.

Why does a scientific man find satisfaction in studying Nature?

Let me once more quote Poincaré:—

"The student does not study Nature because that study is useful, but because it gives him pleasure, and it gives him pleasure because Nature is beautiful; if it were not beautiful it would not be worth knowing and life would not be worth living. I am not speaking, be it understood, of the beauty of its outward appearance—not that I despise it, far from it, but it has nothing to do with science: I mean that more intimate beauty which depends on the harmony in the order of the component parts of Nature. This is the beauty which a pure intelligence can appreciate and which gives substance and form to the scintillating impressions that charm our senses. Without this intellectual support the beauty of the fugitive dreams inspired by sensual impressions could only be imperfect, because it would be indecisive and always vanishing. It is this intellectual and self-sufficing beauty, perhaps more than the future welfare of humanity, that impels the scientific man to condemn himself to long and tedious studies. And the same search for the sense of harmony in the world leads us to select the facts which can most suitably enhance it, just as the artist chooses among the features of his model those that make the portrait and give it character and life. There need be no fear that this instinctive and unconscious motive should tempt the man of science away from the truth, for the real world is far more beautiful than any vision of his dreams. The greatest artists that ever lived—the Greeks—constructed a heaven; yet how paltry that heaven is compared to ours! And it is because simplicity and grandeur are beautiful that we select by preference the simplest and grandest facts, and find our highest pleasure, sometimes in following the gigantic orbits of the stars, sometimes in the microscopic study of that minuteness which also is a grandeur, and sometimes in piercing the secrets of geological times which attract us because they are remote. And we see that the cult of the beautiful guides us to the same goal as the study of the useful."

"Whence comes this harmony? Is it that things that appear to us as beautiful are simply those which adapt themselves best to our intelligence, and are therefore the tools which that intelligence handles most easily; or is it all the play of evolution and natural selection? In that case, those races only survived whose ideals best conformed with their interests, and while all nations pursued their ideals without regard to consequences, some were led to perdition and others achieved an empire. One is tempted to believe that such has been the course of history, and that the Greeks triumphed over the barbarians, and Europe, inheritor of Greek thought, rules the world, because the savages cared only for the sensual enjoyment of garish colours and the blatant noise of the drum, while the Greeks loved the intellectual beauty which is hidden beneath the visible beauty. It is that higher beauty which produces a clear and strong intelligence." If the mathematician's imagination is fired by the beauty and symmetry of his methods, if the moving spring of his action is identical with that of the artist, how much truer is this of the man of science who tries by well-designed experiments to reveal the hidden harmonies of Nature? Nor would it be difficult, I think, to trace the gratification inherent in the successful accomplishments of other intellectual pursuits to the same source.

Though Poincaré was, I believe, the first to lay stress on the connection between the search for the beautiful and the achievement of the useful, the æsthetic value of the study of science had previously been pointed out, and well illustrated, by Karl Pearson in his "Grammar of Science." As expressed by him: "It is this continual gratification of the æsthetic judgment which is one of the chief delights of pure science." Before we advance, however, any special claim for the pursuit of science based on these considerations, we must pause to think whether they do not equally apply to other studies or occupations. For this purpose, the nature of the æsthetic enjoyment involved must be remembered. We do not mean by it the pleasure we feel in the mere contemplation of an impressive landscape or natural beauty, but it resembles more the enjoyment experienced on looking at a picture where, apart from the sensual pleasure, we are affected by the relation between the result of the representation and that which is represented. The picture, quite apart from what it may be trying to imitate, has a certain beauty due to its contrast of colours or well-balanced arrangement. We have in one case a number of pigments covering a space of two dimensions, and in the other the natural object in three dimensions made up of entirely different materials and showing an infinite variety of detail and appearance. By itself alone either a mere photographic representation, or a geometrical arrangement of colour and line, leaves most of us cold; though both have their own particular beauty, the art con-

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sists in bringing them into connection. Bearing in mind the æsthetic value of the relationship of the work of our brain or hand to external facts or appearances, it might easily be shown that what has been said of science equally applies to other studies, such as history or literature. We may even go further, and say that any occupation whatever, from which we can derive an intellectual pleasure, must possess to a greater or smaller degree the elements of combining the useful with the beautiful.

In order to trace in detail the part played by purely emotional instincts in directing the course of our lives, we should have to study the causes which influence a child, free to select his future profession. Having eliminated secondary effects, such as early associations, or the personal influence of an inspiring teacher, we should probably be brought to a standstill by the dearth of material at our disposal, or led into error by taking our own individual recollections as typical. Nevertheless, it is only through the record of each man's experience that we may hope to arrive at a result. If every man who has reached a certain recognised position in his own subject—it need not be pre-eminence—would write down his own recollections of what led him to make the choice of his profession, we might hope to obtain facts on which a useful psychological study might be based. Scientific men as a class are not modest, but they share with other classes the reluctance to speak of their early life, owing to a certain shyness to disclose early ambitions which have not been realised. It requires courage to overcome that shyness, but I think that we need feel no shame in revealing the dreams of our childhood and holding fast to them despite the bondage of our weakness, despite the strife ending so often in defeat, despite all the obstacles which the struggle for existence has placed in our path. In some form they should persist throughout our lives and sustain us in our old age.

But the account of our early life should be simple, detached from any motives of self-depreciation or self-assertion, and free from any desire to push any particular moral or psychological theory. We want to trace the dawn of ambition, the first glimmering in the child's mind that there is something that he can do better than his fellows and reminiscences of early likes and dislikes which, though apparently disconnected from maturer tendencies, may serve as indications of a deep-seated purpose in life. It may be difficult to resist the temptation of trying to justify one's reputation in the eyes of the world; but it is worth making the effort. The only example that I know of such an autobiographical sketch is that of Darwin, which is contained in his "Life and Letters," published by his son, Sir Francis Darwin.

The ambition of a child to be better, cleverer, or more beautiful than its fellows is in the main, I think, a wish to please and to be praised. As the child grows up, the ambition becomes more definite. It is not a sordid ambition for ultimate wealth or power, nor is it an altruistic ambition to do good for the sake of doing good. Occasionally it takes the form confessed to by Darwin, when he says: "As a child I was much given to inventing deliberate falsehoods, and this was always done for the sake of causing excitement." This desire to be conspicuous was, in Darwin's case, consistent with extreme modesty, amounting almost to a want of confidence in himself, as appears in this passage: "I remember one of my sporting friends, Turner, who saw me at work with my beetles, saying that I should some day be a Fellow of the Royal Society, and this notion seemed to me to be preposterous."

We next come to the stage where a child is attracted by one subject more than another, and, if his choice be free, will select it for his life's career. What guides him in this choice? If it be said that a boy gravitates towards that subject which he finds easiest, we are led to the further question, why does he find it easiest? It is on this point that more information is required, but I am inclined to answer in accordance with Poincaré's views that it is because its particular beauty appeals most strongly to his emotional senses. In questions of this kind everyone must form his own conclusions according to his personal recollections, and these convince me that the emotional factor appears already at an early age. It is the strong attraction towards particular forms of reasoning, more perhaps even than the facility with which reasoning comes, that carries us over the initial difficulties and the drudgery that must accompany every serious study.

I have already alluded to the different tendencies of individuals either to prefer solitary reflection or to seek companionship. Almost in every profession we find men of both types. Darwin's autobiography furnishes a good example of the man who prefers to learn through quiet reading rather than through lectures, but to many men of science the spoken word is inspiring and contact with congenial minds almost a necessity.

From our present point of view the most interesting passages in Darwin's autobiography are those indicating the æsthetic feeling which, like Poincaré, he connects with scientific research. Referring to his early studies we find this passage: "I was taught by a private tutor and I distinctly remember the intense satisfaction which the clear geometrical proofs gave me. I remember with equal distinctness the delight which my uncle gave me by explaining the principle of the vernier of a barometer." To a man who apparently had no pronounced facility of mastering mathematical difficulties this feeling of satisfaction is especially remarkable. The combination of scientific ability with learnings either to music, or art, or poetry, is very common, and examples are to be found in almost every biography of men of science. It is difficult indeed to name an eminent scientific man who has not strong leanings towards some artistic recreation: we find the poetic vein in Maxwell and Sylvester, the musical talent in Helmholtz and Rayleigh, and the enthusiastic though amateurish pictorial efforts of less important men. That the similarities are to be found also in temperament may be noticed on reading Arnold Bennett's article on "The Artist and the Public," where many passages will be seen to be applicable to students of science as well as to writers of fiction.

If we look for distinctions between different individuals, we may find one in their leanings either towards the larger aspects of a question or the microscopic study of detail. The power of focussing simultaneously the wider view and the minute observation is perhaps the most characteristic attribute of those who reach the highest eminence in any profession, but the great majority of men have a notable predilection for the one or other side. Though it is indispensable for a scientific man to study the details of the particular problem he is trying to solve, there are many who will lose interest in it as soon as they believe they can see a clear way through the difficulties without following up their solution to its utmost limits. To them detail, as such, has no interest, and they will open and shut a door a hundred times a day without being even tempted to inquire into the inner working of the lock and latch.

There is only one feature in the operation of the intelligence by means of which a sharp division may possibly be drawn between brain-workers showing special capabilities in different subjects. In some persons thought attaches itself mainly to language, in others to visualised images, and herein lies perhaps the distinction between the literary and scientific gift. Those who, owing to external circumstances, have resided in different countries are sometimes asked in what language they think. Speaking for myself, I have always been obliged to answer that, so far as I can tell, thought is not connected with any language at all. The planning of an experiment or even the critical examination of a theory is to me entirely a matter of mental imagery, and hence the experience, which I think many scientific men must have shared, that the conversion of thought into language, which is necessary when we wish to communicate its results to others, presents not only the ordinary difficulties of translation, but reveals faults in the perfection or sequence of the images. Only when the logic of words finally coincides with the logic of images do we attain that feeling of confidence which makes us certain that our results are correct.

According to Poincaré, the pleasure which the study of science confers consists in its power of uniting the beautiful with the useful; but it would be wrong to adopt this formula as a definition of the object of science, because it applies with equal force to all human studies. I go further, and say that the combination of the search for the beautiful with the achievement of the useful is the common interest of science and humanity. Some of us may tend more in one direction, some in another, but there must always remain a feeling of imperfection and only partial satisfaction unless we can unite the two fundamental desires of human nature.

The President and Council of the Royal Institute of Oil Painters, 195 Piccadilly, cordially invite all members of his Majesty's Forces in uniform to visit the exhibition of pictures at the Institute.

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SOME OF THE LARGER PROBLEMS OF TOWN PLANNING.*—II.

By Thomas H. Mawson, Hon.A.R.I.B.A.

The town-planning movement in this country is undoubtedly looked upon by many people with the smile of amused contempt, as something quite outside the range of practical politics and hardly worth a serious man's attention. When we compare this attitude of mind with that prevailing in other countries, where the movement is viewed as one with a great future before it, we are convinced that this is a mistaken attitude, and it behoves us to look for the cause and not to rest until we find it. Unless we decide, first of all, what are the broad principles for which we contend, and when we have decided what they are, we realise exactly how they are to be attained, all our efforts will be lost in a muddle of small aims and undecided purposes. One might even go so far as to say that, so far, in the town-planning movement in this country, this confusion of aims has been more or less paramount, with the result that, to the outsider who sees "most of the fun," we as a body have appeared rather as a set of cranks with "hobbies to ride," who have allowed our imagination to over-ride our discretion, and who think that, by doctoring one small sore which has come under our immediate observation in the body politic, we can heal all the ills to which the organism as a whole is subject.

The location of all cities is first of all strategic either in a military or a commercial sense. Manchester is ideal as a distributing centre; Liverpool as a shipping port, and London as a governmental centre, Oxford and Cambridge, and especially the latter, as originally strategically perfect academic centres. Nature first provided the ideal condition, and science and art have contributed to give these natural advantages their economic value. Lancashire

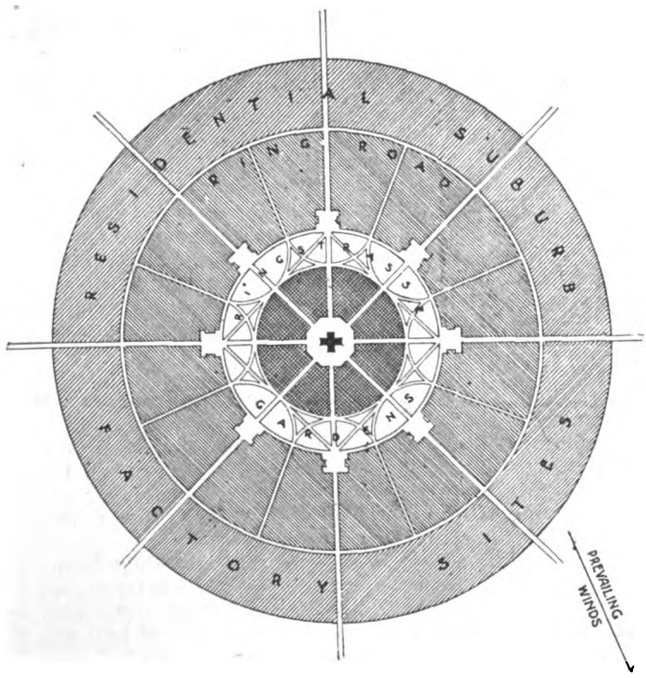


Fig. 1.

manufacturing towns are dependent upon a humid atmosphere and ample supply of good water for the development of their industries, necessities which cannot be found in such perfection in any other part of the world, if we except Ireland, which shares with this district the peculiar advantages given to it by the presence of the humid strata of air overlying the Gulf Stream.

Lancaster and Preston lie about thirty miles apart on the London and North-Western Railway main line to Scotland. But the former town suffers from its weak strategic position in relation to the latter in having to pay about thirty thousand pounds per annum over and above the sum paid by Preston for the same amount of heavy goods traffic. Including parcels and passenger charges, Lancaster is probably penalised to the extent of at least fifty thousand pounds per annum, which is equal to a rate of 5*s.* 6*d.* in the pound.

This one statement is sufficient to justify the claim that the strategic factor is the one most important of the broad principles on which town planning must rest, for when collecting data for a town-planning scheme we must, before anything else, study the strategic element, which is so largely a geographical one, for the life of the town must depend very largely upon the freedom with which its raw materials can be delivered and the finished or manufactured or mineral products of the district distributed.

It is the perfect strategic position of Port Sunlight for the receipt and delivery of goods, and the consequent vast saving effected in the handling of merchandise, which has made this model village possible. It provided the opportunity which Sir William Lever seized and realised, with a result which has given his notable experiment a world-wide reputation.

Turning, then, to others of the larger problems which confront the town planner, I would mention first of all that most important subject the provision of cheap power municipally or co-operatively owned, thus effecting a saving, not only in its actual working, but also in the hauling of fuel and the housing of a number of smaller plants, probably also doing away entirely with the smoke nuisance. The importance of this matter is so universally acknowledged that I need not enlarge upon it, nor on the desirability of a good water supply and the location which will permit of effective and economic sewage disposal by gravitation without any pumping, nor even on the necessity for cheap heat and light, though possibly these two last are ones which have been brought before me more prominently in my practice than they would be before some members here who have not worked in Canada, where natural gas wells up from the soil and has only to be collected and distributed, and electric power for light is so abundant that street lighting, for instance, can be carried on in such towns as Ottawa in a manner which would fill the heart of the English town councillor with envious admiration.

While everyone will realise at once the importance and the interdependence of such factors as cheap power, good water supply, and effective sewerage by gravitation, there is one other dependent on them and on which they equally depend which has far-reaching influence on the success of any town, the importance of which has never been fully grasped in those experiments of town planning which have been carried out in this country. This is the scientific study of traffic problems and traffic control on an economic basis. In most of the work done in this country it would appear from the result that there has been no consciousness of the tremendous need for full consideration of this most important subject, and even where it has been dealt with it would seem as though the paramount idea of the designer was to bring as much traffic into the roads as possible, whereas surely the opposite ought to be the aim. And yet how intensely vital a subject it is, for without traffic the city, town, or village cannot live.

At Bolton, Lancashire, the 146 mills and other works have delivered to them in the course of a year by different railway companies 580,000 tons of merchandise, together with 220,000 tons of minerals and 845,000 tons of coke and coal, making altogether the enormous total of 1,645,000 tons of merchandise dragged through the streets at an approximate cost of £123,375, at a moderate estimate of 1*s.* 6*d.* per ton. These figures do not include anything brought into Bolton by road from Manchester or elsewhere, and the heavy motor-car traffic in the town on this account is enormous. Nor do these figures include the 300,000 parcels received and sent out from the different stations in Bolton, nor the still larger amount of traffic handled by numerous business houses in the retail delivery of goods.

At Sheffield we have the opposite state of affairs. Here in one of the seven largest cities in the kingdom, although there is an enormous trade in extremely heavy goods going on day and night, there is no other city where the street traffic problems are so simple, entirely because this one side of the traffic problem—that is, the provision of proper connection between the works and the railway—is adequately dealt with. Sheffield is not, however, a perfect example of the solution of traffic problems, even only so far as they affect the railway companies and railway facilities. While this heavy goods traffic is splendidly

* Abstract of the second of two lectures delivered before the Town Planning Institute.

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dealt with, the very reverse is the case with the passenger traffic. Neither of the two big stations is really well placed in this respect.

The most obvious thing to do when taking up the study of the traffic problems of a town is to divide it into radial and gyratory traffic, for the wheeled traffic in almost any town may be divided up into three-quarters of its entire bulk, which proceeds in a radial direction, either to or from the centre of the town, and the remaining quarter which

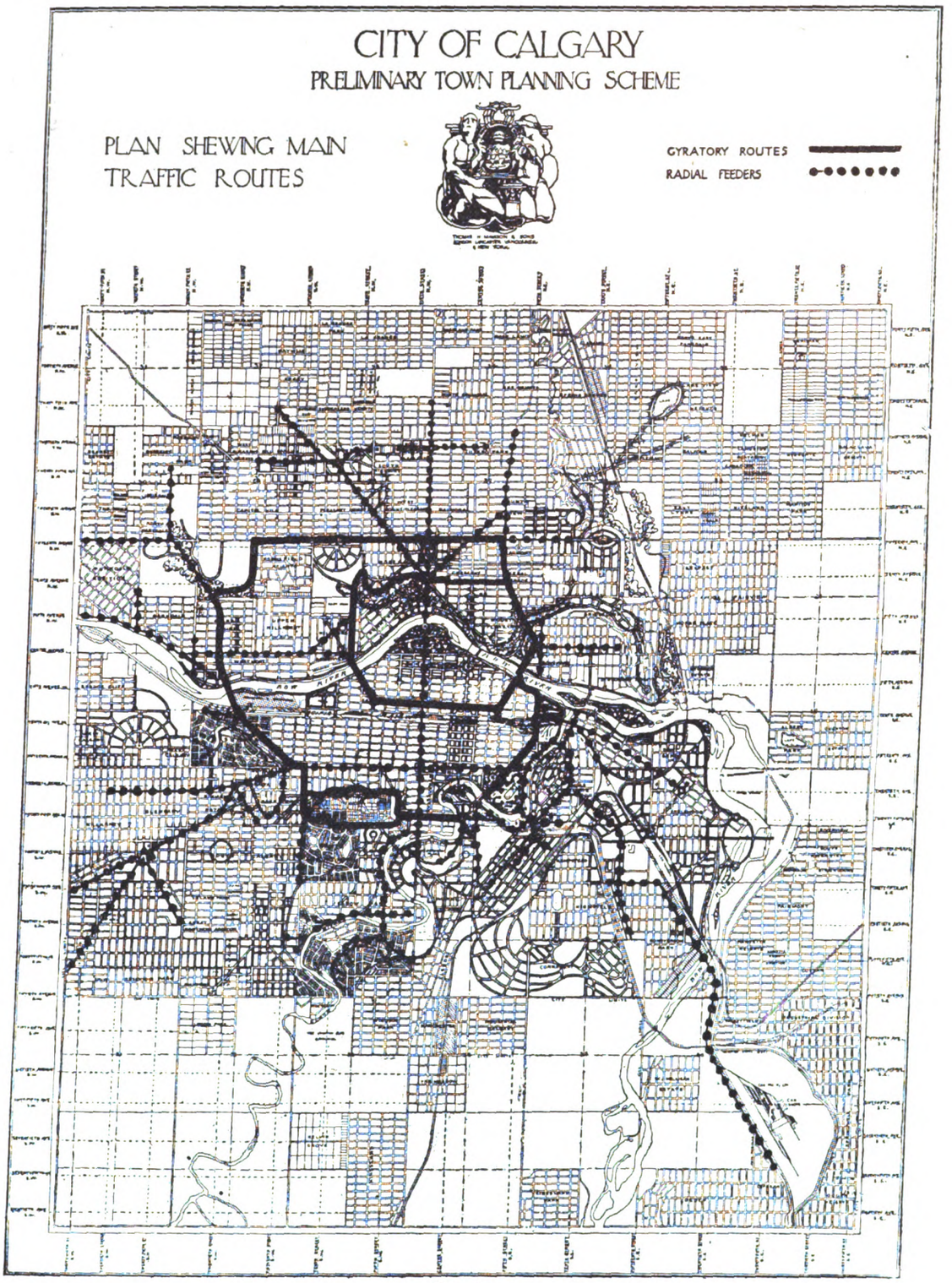


Fig. 2.

gyrates round that centre. This obvious and simple expedient at once brings a semblance of order out of the chaotic mass of vehicles of all kinds which appear to be rushing indiscriminately in all directions, and gives us some hope of bringing the whole down to a scientific basis, for, of course, the aim of the scientific town planner is so to plan his traffic streets that they exactly follow the lines of the bulk of the traffic which is to occupy them. This would all seem very obvious, and I would not have mentioned it but for the fact that I find so many people who so far fail to realise it that they consider that, for utilitarian purposes, we could have no better plan than the American square block one, in which every street runs at right angles to every other, and, in conversation with them, I have discovered that they considered that in this respect there was rather the conflict between æsthetic and practical ideals.

Now here, if there were time, I should like to enter on an intensely interesting argument which I have sustained on more than one occasion to prove that there never can be any conflict between the practical and the æsthetic. In those cases where there appears to be such a conflict it is either because our practice is not truly practical or our æsthetics are false, but all of you, I suppose, will be with me here, and especially those of you who have endeavoured to produce beautiful architecture, not by the addition of superimposed ornament, but by the correct disposition of parts and proportions; so I need only say that what you have

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found such an engrossing method, and one which promises such exceptional results, is equally applicable to the solution of traffic problems. At first sight this may seem a very bold statement to make, but before you have proceeded far with the study of the subject you will see that those lines which are good for traffic are the graceful lines, that where traffic converges, if the necessary open space is planned with due regard to the division of streams of traffic and the preservation of lines of vision, it will not only lend itself to fine architectural treatment, but will be such as almost to compel such a treatment and to make its adoption self-evident.

The direction of the flow and ebb of traffic as a whole must be considered very carefully before proceeding to differentiate between wheeled and pedestrian traffic, railed or railless traffic, horse-driven or mechanically-driven traffic, and so on. This can best be done, perhaps, with the aid of diagrams and plans showing the practical application of the principles these diagrams demonstrate.

As a guard against any accusation of partiality for extreme formalism in planning, it should here be mentioned that fig. 1 is no more intended to be the plan of a town than are the three excellent diagrams which Mr. Ebenezer Howard gave in his book "Garden Cities of To-morrow," and which probably did more to popularise his ideas than any amount of letterpress could have done. Radial parkways and many other features which are absolutely essential to success are omitted for the sake of clearness. In fact, the diagram is absolutely wrong from several points of view, solely with the idea of making it clearer from that of traffic. The radial and gyratory road systems are well marked, two classes of radials, main and subsidiary, being indicated, and a special effort has been made by means

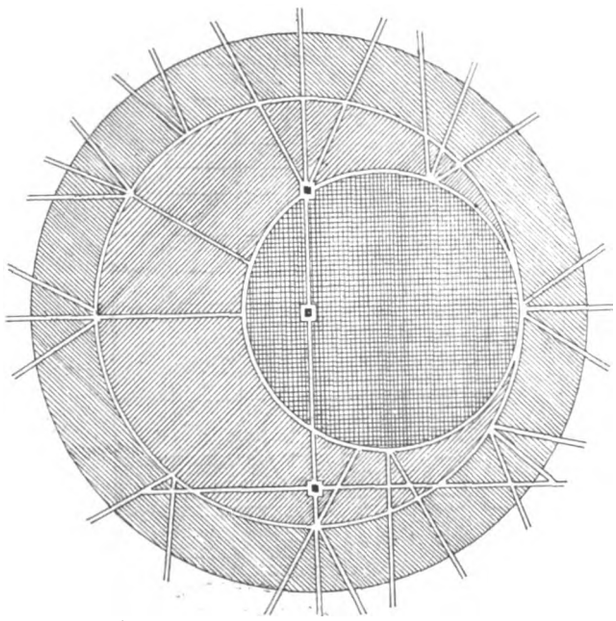


Fig. 3.

of what are marked as "ringstrasse gardens" to prevent the congestion of the central square by traffic which may be deflected from it, the gardens giving the opportunity of doing this where open corners can be arranged so as to avoid destroying the momentum of traffic as far as possible.

This is the ideal; now let us see how, in two instances, this is worked out in practice. First of all, we have the plan of the author's traffic scheme for Calgary, in Alberta (fig. 2). Theory and practice proved here, as in most other cases, to be two very different things. The square-block system, on which the greater part of the town is planned, is here an utter abomination. To make the best of it, radials and connecting gyratory links are introduced wherever possible. The centre of the city was, however, already so fully built up as to make radials running through it quite impossible, and thus you will see from the slide, most of the latter start from the outer gyratory ring.

Now, for purposes of comparison with the previous diagram here is the actual traffic scheme for Calgary reduced to similar diagrammatic form (fig. 3). It is very far from perfect. One great defect is the absence of main radials within the inner gyratory circle, and another defect almost as great is the fact that the same roadway for a portion of its route forms a part of both gyratory systems, thus throwing very heavy traffic on to one road at one point. This could not, however, be avoided by any practical expedient that presented itself.

Great radial roads could be constructed in most towns in this country with surprising ease. Describing the plan of an imaginary town, which, however, so far as its main features go, might be the plan of nine-tenths of our provincial towns, Mr. Mawson continued: In the middle we have the congested centre and round it we have a number of old highways stretching out into the country in all directions and built up on both sides. Between these highways there are open areas of ground, generally given up to allotment gardens, fowl runs, tipping ground, and other unsavoury and unsightly uses, and these provide the town planner with a splendid chance of forming these great radials.

One aspect of town planning interlocks and is interdependent with every other aspect, and it is not possible to consider practically one feature like traffic without considering its relationship to every other factor. In particular, the boulevard stands half-way between the recreation ground and the busy street, and to try and divide one's town planning into watertight compartments would obviously be absurd, or in cases such as the boulevard the scheme would immediately break down.

Then comes the great question of co-operation and collaboration between the various men who are to plan the city. We do not realise what ought to be perfectly self-evident, and that is that no one man can, in the space of his natural span of existence, attain to sufficient knowledge of all the many component subjects necessary to allow him to plan a city from the cutting of the first sod to the choice and selection of the personnel of the municipal brass band. Generally in this country it is assumed that each town plan should be the work of one man, but this really is absolutely absurd. Between the two extremes which form the first necessity and the last luxury of city formation, comes a vast agglomeration of specialised effort which must entail the services of many experts, and it is usually assumed that the final oversight, the last word, must necessarily be placed in the hands of one of them. Writing in the "Town Planning Review" some time ago, Professor Adshead said: "In England there still exists a great variance of opinion as to which profession most nearly possesses the necessary qualifications. The real issue lies between the architect and the engineer, whilst surveyors, landscape architects, and sociologists have certainly a voice in the matter." He then went on to suggest a kind of compromise. The surveyor is to have control during the preliminary work, then the engineer is to be in command, and, finally, the architect is to take possession of the field, and furnish the plan with buildings. This point of view is a very typical one, which must be my justification for taking it up for criticism.

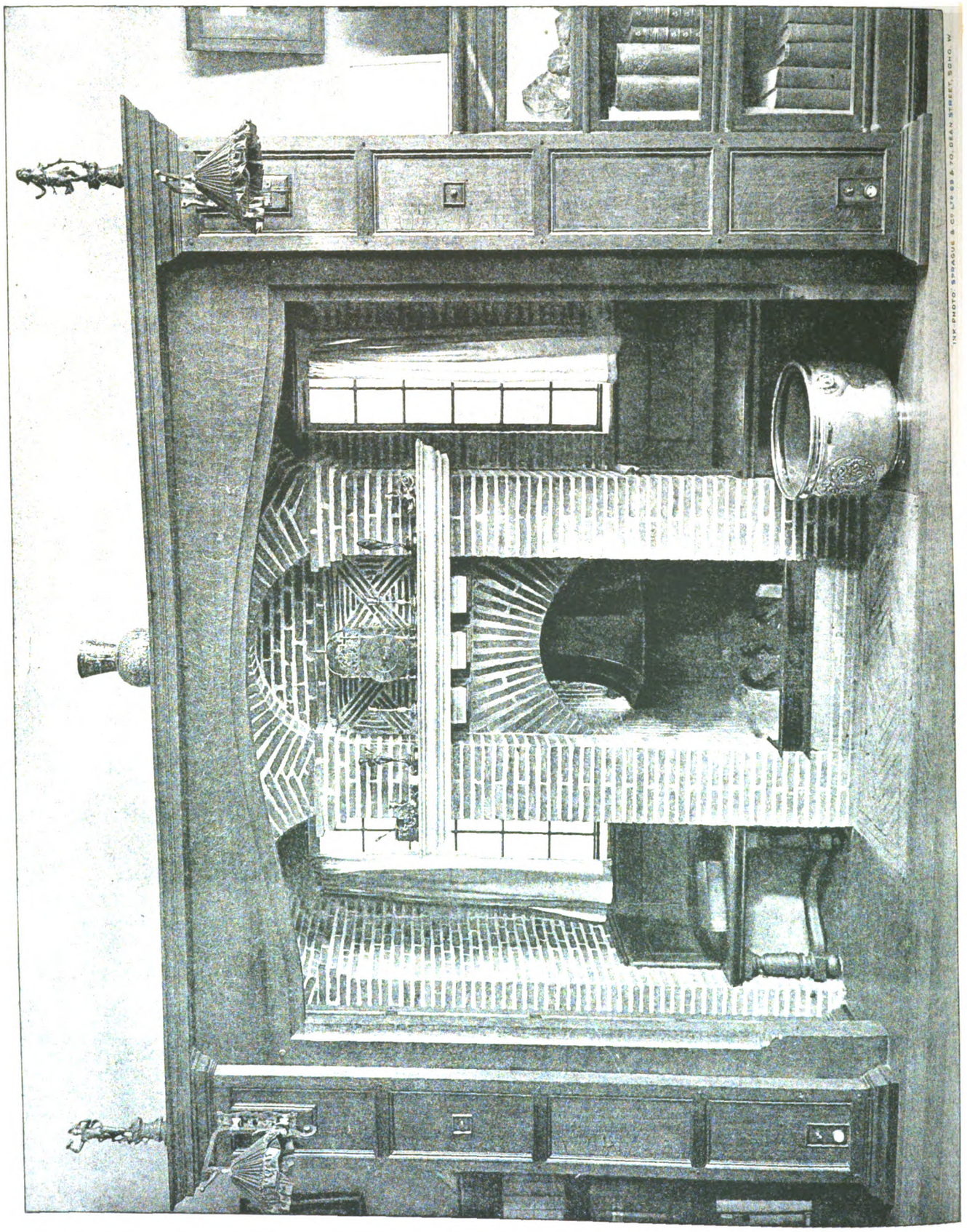
One cannot but feel that the greatest end of town planning cannot be served by such a compromise. The one point above all others which its advocates have insisted upon is that continuity of policy from start to finish should be assured, and this cannot be if each specialist is to be in control in turn, however much he may be guided by others whose spheres interlock with his. This brings us to the inevitable conclusion that there must be some person whose training has been, not that of a specialist, but of that general nature which will place him in sympathy with all the specialists employed, to exercise the judicial faculty, to co-ordinate and correlate the work of each, and to see that every interest is adequately met; and this is the person who, for lack of a better name, I would call the "Landscape Architect."

Mr. Mawson concluded his lecture as follows:—"I am afraid that in advocating this in England I am asking too much. I am afraid that, so far, our outlook in town-planning matters has been so narrow that we have each in effect, if not in words, cried out, 'I am the man,' if we have not added, 'and wisdom shall die with me!' I would feel repaid for the effort of a hundred such lectures as this if I felt that by giving them I had done something towards the creation of a sympathetic attitude on the part of each of those concerned in the planning of towns towards the work of others, and if I could feel that there was a state of mind taking shape and growing up which would lead ultimately to happy co-operation and collaboration between the architect, the surveyor, the engineer, the cheap cottage expert, the municipal architect, the school architect, the sociologist, the organised play expert, the factory designer and inspec-

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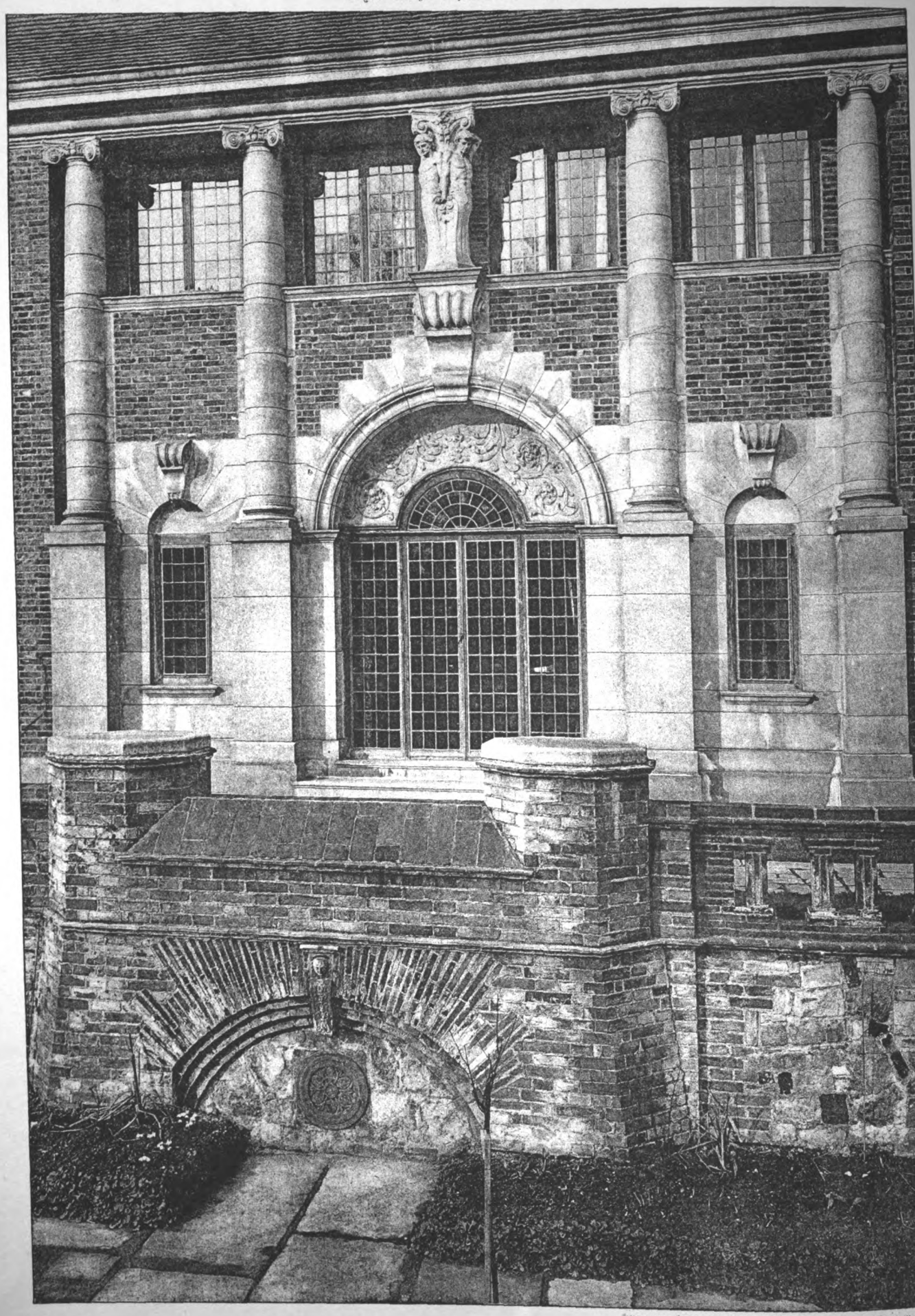
LANCASTER HOUSE, REGENT'S PARK, LONDON

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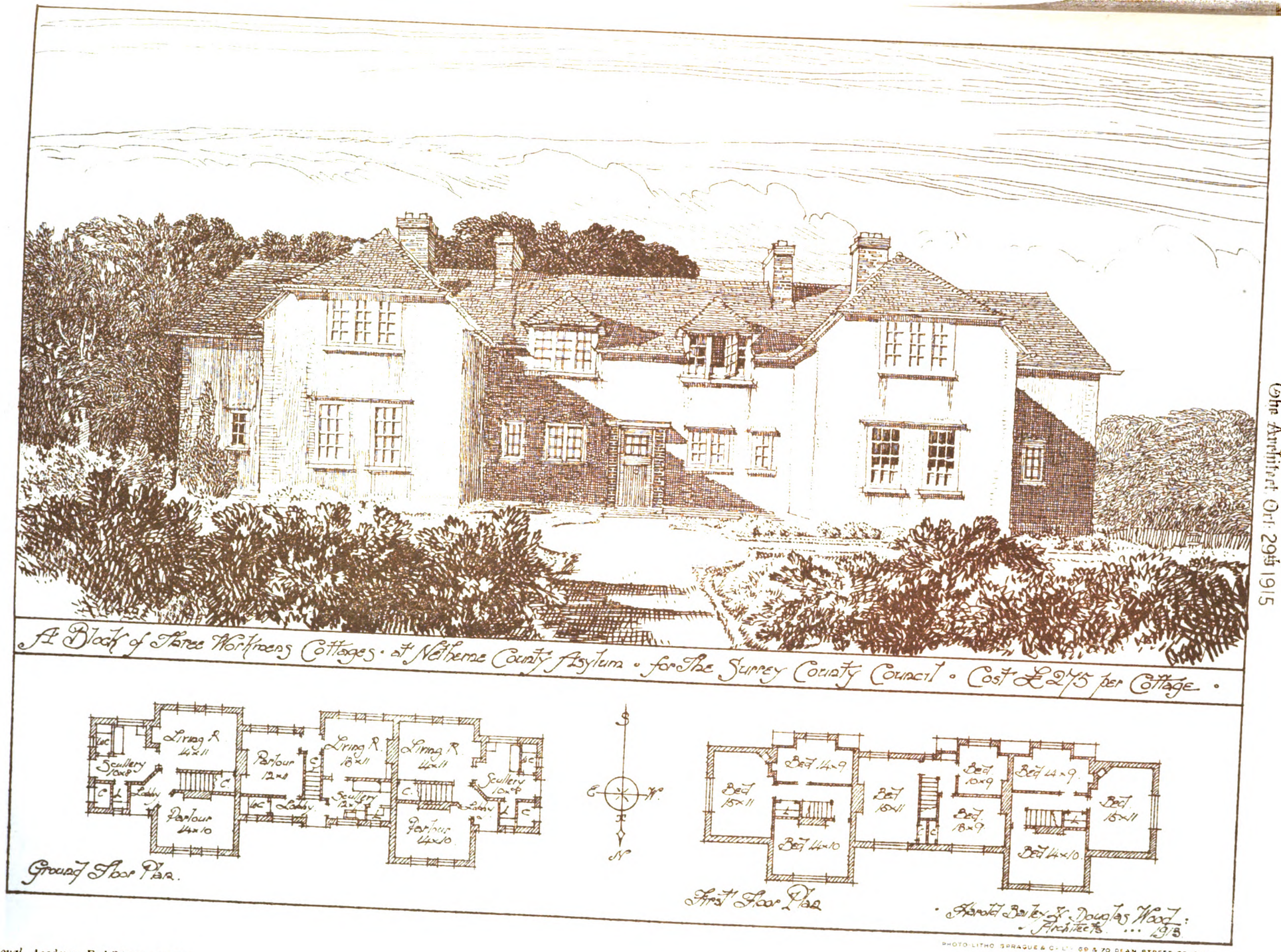
HOUSE AT BICKLEY, KENT.

Messrs. HAROLD BAILEY and DOUGLAS WOOD, Architects.

(Royal Academy Exhibition, 1915.)

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The Architect Oct. 29th 1915

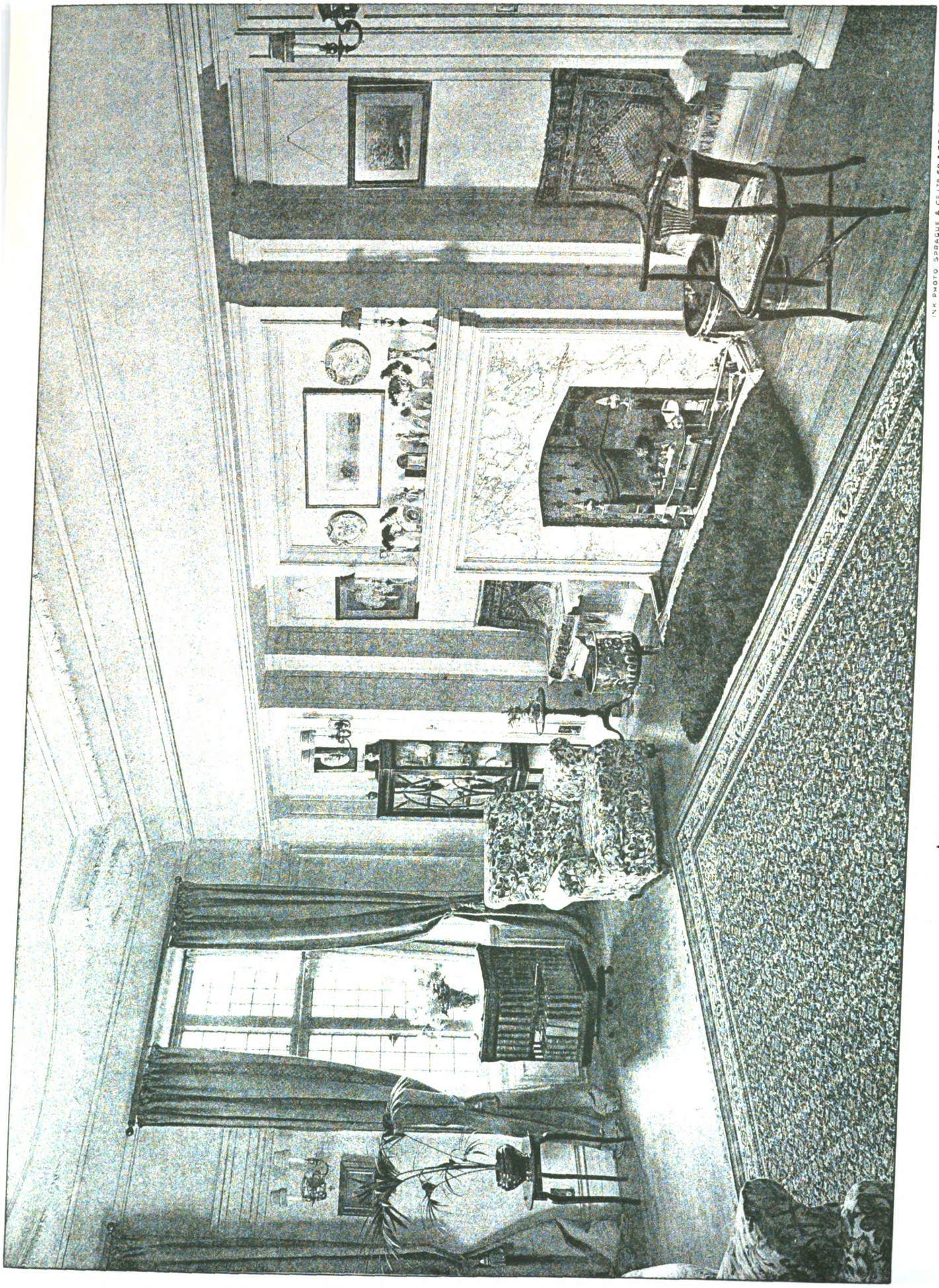
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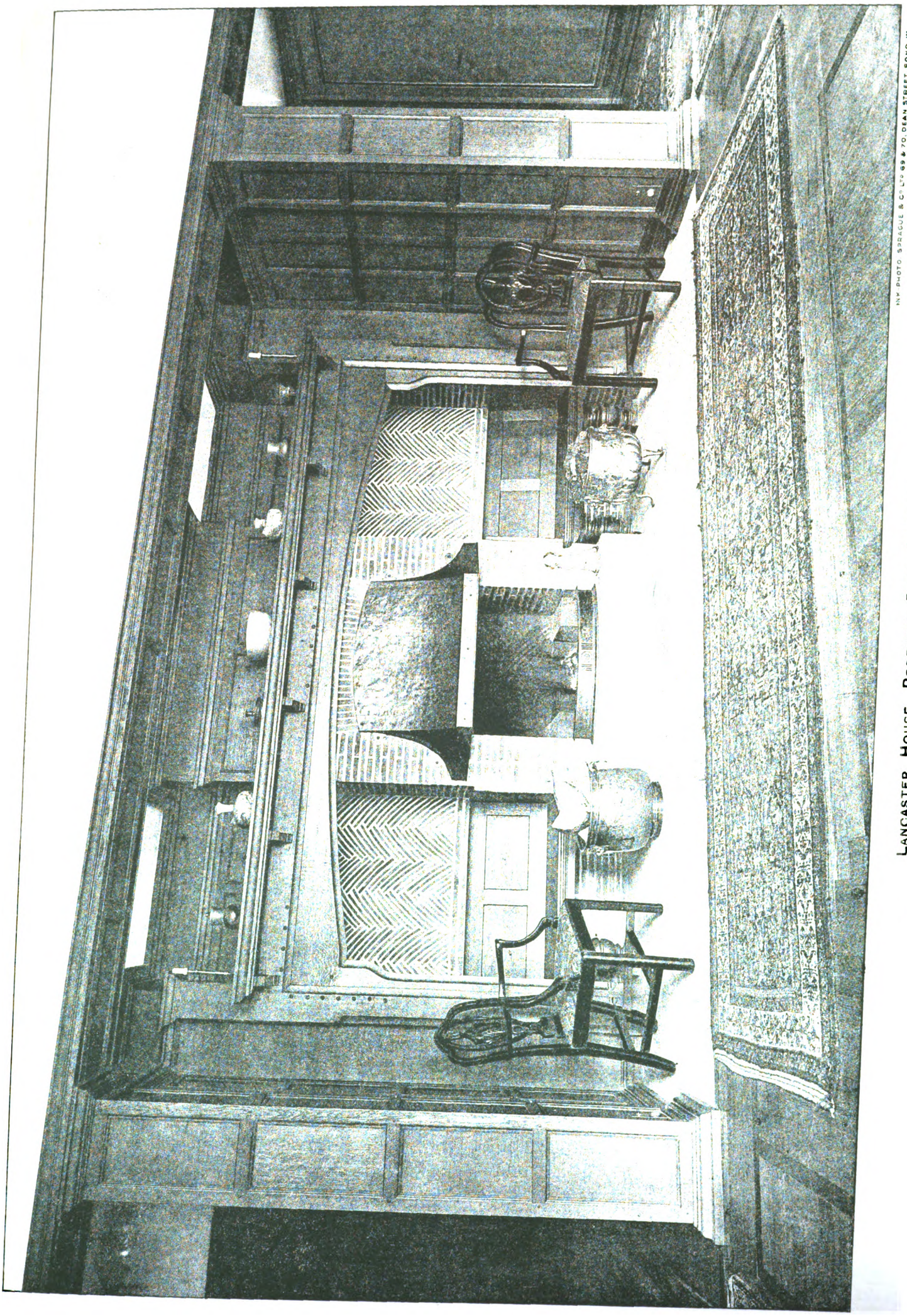
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tor, and every other interest, which would allow them all to work in happy collaboration, and, finally, to report to a man who has a knowledge of every interest in the round sufficient to allow him to correlate the whole. This man we might call the town planner or the landscape architect, but to choose such a man because he is an expert in any one of these directions more than another would, I am sure, be fatal to success."

WAR VALUES AND PROPERTY.*

As might be expected, the effect of the declaration of war in August 1914 upon the property market was immediate and pronounced.

A wave of patriotic emotion swept over the country, as it was recognised that Britain had gone to war in defence of freedom and humanity.

The dawning realisation of how great was the task was emphasised by the financial crisis, a crisis which necessitated the hitherto unprecedented step of closing the Bank for five days, the creation of the moratorium, and the passing of the Emergency Acts.

Huge armies were required, and so general was the response to the call for volunteers that nearly every house in the land sent some member of the family to take his place in the ranks.

The nation being under the stress of three great disturbing forces—political, financial, and domestic—it is no matter for surprise that all interest in the transactions of the property market was obliterated and that its operations were brought to a virtual standstill. Matters in hand were carried through; but from the time when the magnitude of the issues at stake was recognised, who could dream of launching out into new undertakings? Those who had contemplated changing their residences could not pursue their projects in the face of possibilities which might change the whole current of their lives. Investments ceased to change hands, not only because of the stringency of the money market, but because of the knowledge that the whole of the nation's financial resources might be required for the prosecution of the war.

The sales of property at the London Auction Mart for the first seven months of 1914 were not large, being only £1,718,205 in amount, but during the last five months they fell to the abnormally low figure of £148,426, which was in itself sufficient to indicate a practical suspension of all buying and selling except in cases where, on account of special circumstances, it was urgent that property should be bought, sold, or mortgaged in spite of unfavourable conditions.

It is in these exceptional circumstances that members of our profession are called upon to advise their clients, under conditions of confusion and perplexity which present the gravest difficulty to the valuer in arriving at anything like a satisfactory conclusion as to the value which at the moment the property possesses.

The easiest way of dealing with such a matter would of course be to say that, as there is little probability of a sale being effected at an adequate figure until after the war, it is at the moment impossible to place any value at all on the property. Such a statement, however, would be at once unjust to the owner and disadvantageous to the other party in that it might deprive him of the opportunity of acquiring a desirable investment. Neither would it be reasonable to fix the value as in ordinary times "at the price which it will fetch." The circle of buyers is, for the reason indicated, so restricted that, although it is possible that a buyer might be found, it would probably be at a price low out of all proportion to the true value. The correct way, I suggest, is to view the value not as non-existent, but as in suspense; to estimate as nearly as possible the value after the war, and to make such deduction as may be thought sufficient to cover possible accumulation of unpaid interest and other contingencies pending the period of suspense. Such a figure, when duly arrived at, may be considered the present value. Obviously, however, the crux of this calculation is "the value after the war," and to the solution of this problem we must now address ourselves.

In the consideration of the following points it will be well to clear the ground by premising:

That a successful issue of the war is assumed; if the contrary were the case new conditions would be imported of such unknown magnitude that all possible calculations would be falsified.

That in the absence of any knowledge of the important factors, the duration and expense of the war, this prognostication can be only of the most general and approximate nature.

That we are considering the effect of the war conditions on the landed industry only, as distinguished from the general commerce of the country.

That we are dealing with urban properties as distinct from agricultural, although doubtless the latter class will be influenced by the same general conditions which obtain in other departments.

The property market has been likened to a barometer, which records in a most sensitive manner the fluctuations of national prosperity. This is true as a general proposition, but the influences which cause it to rise or fall are by no means so simple as might be supposed from the analogy of the barometer. Value in the property market would be more correctly described as the resultant of a highly complex system of forces acting in different directions and with varying strengths. This is the case at all times, and the present exceptional circumstances are not exceptional in that respect.

In order to estimate value at any given time we must identify and estimate the forces operating at the moment, and in the present case "the moment" is the time when a peace shall have been declared satisfactory to the Allies, when the apprehension and uncertainty attaching to war conditions shall have been removed, and when there will remain to be taken into account only the condition of the money market and the circumstances attendant on the international adjustment of trade.

For the sake of clearness we may divide the constituent forces into two classes—those which tend to appreciate values, and those which tend to depreciate values. In the first class—viz., the appreciatory factors—we find:—

The rebound of the spirit of the community after the depression caused by the war. There is little doubt such a rebound will take place, and though the exuberance which is known as "Mafficking" is ephemeral, there will remain a spring, an élan, which will impart vigour to business and to enterprise of every kind.

The influx of visitors from all parts of the world. This should be the case, particularly with regard to our Allies, with whom our relations must inevitably be far more intimate than ever before. Forces have been set in motion which may well make this country the Mecca of the world and cause therein an expenditure which should be beneficial in a high degree to the trade of the country.

The lessons of the war as to the extent to which this country had become dependent upon others for articles which could be equally well made in our own land. The capture, as it has been called, of German and Austrian trade ought to and will become a reality if the opportunity be seized and the necessary political and economic arrangements made for the purpose.

The stoppage of capital going out of the country. This feature, which has been responsible during recent years for at least some part of the depression in the property market, will be diminished if not wholly done away with. So much will be required within our own borders that it is quite possible that there may even be legislation in this direction. The movement has already begun in the form of the large increase in the balances of the various banks. I am credibly informed that in one large banking institute alone the deposits have increased by £35,000,000 since the beginning of the war.

The possibility of legislation to facilitate the acquisition and transference of landed property arising out of the better understanding, which cannot fail to be engendered by the fact that all classes have stood shoulder to shoulder to face a common foe.

All the foregoing forces will tend to improve business, and directly or indirectly to improve values in the property market.

There is also another force at work which, although not likely to influence the property market as a whole, must yet be considered as tending to raise values in a certain section. I allude to the probable shortage of houses of a low grade of rental. During the past few years there has been a steady diminution of the number of houses built in proportion to the population. For instance, during the period 1906-12 houses were built in the ratio of one house to every 422 of the population, in place of the previous average,

* Extract from the presidential address of Mr. J. Geo. Head before the Auctioneers' and Estate Agents' Institute delivered on October 8.

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which was one house to every 280 persons during the preceding period 1900 to 1906. The decrease continued right up to 1914, and the war therefore opened with a shortage. This will be immensely increased by the effect of the war in reducing incomes, and so driving tenants into houses more cheaply rented than those they had hitherto been occupying. That this tendency to shortage, however, is not general may be understood by imagining the respective numbers of variously rented houses to be represented by a pyramid. Across the side of the pyramid may be drawn horizontal lines to represent the different rentals; thus the highest and shortest line would represent the small number of highly rented houses, the intervening lines gradually increasing in length would represent the intermediate rents, while the base would show the large number of low-priced houses.

The result of the reduction of incomes would be for some of the members of each grade to move down to a lower grade. But as the numbers of the higher grade are less than those of the grade immediately below, it is probable that the numbers of those moving down from the higher grade would not be sufficient to fill the houses vacated by those who move from the lower grade. Consequently the crowding would take place at the bottom of the pyramid, and only in the smaller class of houses would there be any shortage. For these smaller houses, however, there would certainly be competition, which would tend to raise rents.

Let us now look at the other side of the question and note the influences which act as depreciatory factors.

It would not be possible for a great war such as this is to be undertaken without letting loose great disturbing forces most detrimental to business.

The first is that of mental and emotional disturbance, resulting in an extensive withdrawal of interest in mercantile matters, due to the entire absorption of the nation in the war, so peremptory in its claims, so intimate in its relations, so transcendent in its issues.

The second disturbing force is that of economic disturbance and financial upheaval. There is a huge displacement of credit, producing, so far as the property market is concerned, a great scarcity of money by reason of the immense sums required for the prosecution of the war and which are raised largely by war loans. The scarcity of money is emphasised by the fact that, although much of this expenditure is returned to our commerce by being spent in wages and material in this country, a large proportion of it leaves nothing of permanent value behind it.

This scarcity of money depresses property values in the following ways:—

The call of the war loans diverts from the property market a large amount of money which would otherwise be available for that class of investment, and, by lessening the circle of possible investors, depreciates the price of securities.

The flooding of the country with gilt-edged securities yielding the unusually high rate of 4½ per cent. interest, depreciates the price of similar stock, and, competing with landed property, causes the price of the latter to fall also.

The high rate of interest yielded by gilt-edged securities will inevitably cause the rate of interest required by investors in land to rise proportionately, involving a corresponding drop in sale values.

The scarcity of money tends to cripple building expansion and to prevent the extension of business premises and factories. The raising of the rate of interest on loans is likely to increase the price of building materials, thus presenting a hindrance to building in two directions.

The reduction of incomes during the war and after, together with the increased taxation which is and will be payable, must tend to reduce rents and also capital values to a corresponding extent.

Again, there is the general disturbance and feeling of insecurity which invariably depresses prices until it passes away.

Finally, there is a further influence which, paradoxical as it may seem to call it so, is nevertheless temporarily depreciatory in its effect on property values. I speak of the expansion of general trade for which I look to follow a successful conclusion of the war. It is well known that periods of industrial activity frequently coincide with periods of low prices in the property market, the reason being that the expansion of trade absorbs a large amount of available capital at high rates of interest, a feature which, as we have remarked above, at once reacts unfavourably upon the property market. It is after a period of prosperous commerce, when sufficient profits have been made to relax the demand for borrowed capital and to create a surplus for which investment is required, that money becomes plentiful and the rate of interest falls. When this takes place, and not until then, the property market is stimulated and prices rise in sympathy with the demand and the improved monetary conditions. Obviously, then, we must not expect an improvement in property values to follow immediately on the beginning of increased business activity, but must look for a period of transition, during which expansion of trade must be recognised as a depreciatory influence.

A ROMAN BASILICA AND BATH ABBEY CHURCH.

In a recent issue of the "Bath Herald" the following communication appeared over the name of Mr. Richard Mann:—

At the Somerset Archæological Society's meeting, 1914, at Bath, a suggestion was received that above the south-east doorway were the remains of a triforium. Subsequently, in a communication to the local Press, I pointed out that the position of the stonework in question negatived this idea.

In that same communication I also referred to a long perpendicular joint in the exterior face of the south wall, and to a splay connected with it, in the interior, near to the south-east doorway, both joint and splay extending to the top of the wall. Neither was identifiable as a portion of the present building, or its predecessor, the Norman cathedral, nor was it a Saxon work, the only alternative being that it was of Roman origin. The "joint" would be seldom noticed, yet on closer scrutiny it is seen to mark the angle of a quoin, the south face of which, and the masonry continuing westward from it, evidently formed a portion of a wall pier, one of a series, intermediate with recessed walls having windows, probably two, one above the other, as indicated by the present great height of the quoin; although several courses appear to have been removed, the arch that once spanned from pier to pier certainly has, so that the original height of the wall would have been nearly 50 feet. Its thickness is 4 feet 5½ inches—double that of the Roman walls at the Baths. As these dimensions indicated a structure of large scale, such as would be the Roman Basilica, I referred to my "Baths" notes for particulars of its western end, uncovered in the excavation of 1893. By them I ascertained that from the above-mentioned quoin to the west front was a length of about 240 feet, with a portico beyond, thus appropriately proportionate to the Basilica of Aquæ Sulis, the governing centre of the south-west province, the "base" for the Silurian campaign, and the advance northward along the Cotswolds.

I ought, however, to state that Professor Haverfield doubted—I may say denied—the existence of a Basilica here, even though I gave him details of it. He further holds Aquæ Sulis to have been "a small place" within a city wall, "a small spa such as Harrogate or Buxton." But this is disproved by the remains of Roman buildings in our midst, such as the Baths, the Temple, the Basilica, the Pretorium (met with by Wood, the architect), and the Technical Schools stand on the site of another important edifice, having a platform of solid coursed masonry, besides others of less note, in proximity, while in the surrounding district are those many Roman villas from time to time unearthed, which formed the residential Aquæ Sulis. As to the city wall, instead of being a Roman work confining the Roman city, it was not built until 700 years after the "departure of the Romans." Such errors are the more serious and regrettable by their insertion in a standard work such as the Victoria History, as it so detracts from the brightest era of Bath's ancient history. Then at the above-mentioned meeting was again heard the oft-repeated but erroneous story of the destruction of Aquæ Sulis by the Saxons after their victory at Dyrham, A.D. 577. Yet it is common knowledge that on the settling down of the Saxons in England it soon became customary to adopt Roman structures, more especially basilicas, as their churches.

This was evidently the course followed at Bath, its Saxon church of St. Peter being described in a grant by King Edwy, A.D. 957, as "mira fabrica cognoscitur constructum." (The edifice acknowledged to be wondrously constructed.) Aptly as this would apply to the basilican church, it is the more conclusively so in that no foundations, walls, or parts of any such Saxon building have ever been met with in the many excavations around. The Roman Basilica of Aquæ Sulis may, therefore, be accepted as the Saxon church chosen for the coronation of King Edgar, A.D. 973, told in the Saxon ballad thus:—

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This year was Edgar
of Angles lord
with courtly pomp
hallowed to King
at Akemannesceaster
the ancient city
whose modern sons
have named her Bath.
Much bliss was there
by all enjoyed
on that happy day
named Penticost
by men below.
A crowd of priests
a throng of monks
I understand
in counsel sage
were gathered there.
&c., &c.,

Among that "crowd of priests" were "Dunstan, Archbishop of Canterbury; Oswald, Archbishop of York; all the prelates of England, and Saxon notables." Easily may be imagined this "courtly pomp," the monarch at its head, ascending the broad flight of steps placed by the Romans to afford access from the Forum to the shadowing portico of the Basilica, 7 feet above.

But in less than half a century, how great the change. A.D. 1013. Swein, King of Denmark, having subdued a great part of England, reached Bath to receive—doubtless in this same edifice—the submission of Duke Ethelmere and the western thegns, the Danish King becoming King of England. Later, A.D. 1090, Saxonised Aquæ Sulis, plundered and burnt, was bought of the King (Rufus) by John de Villula. Then set in the destruction of the Roman buildings, to provide materials for his palace, his cathedral, and the "huge circuit of walls. The site for his palace extended eastward from the "Circular bath," but immediately north of it projected, obstructively, the western end of the Basilica. So its portico and 60 feet of its length was cleared away, and the new west front for his cathedral built up against the open end of the remainder, 9 feet eastward of the present west front. The steps from the portico he reused in his "King's Bath," but inverted, so that the former upper surface, worn down 2½ inches by the feet of many passing generations during Roman, Saxon, and Danish rule, is undermost, and thus remains at the end of 18 centuries.

And now another fragment of the Basilica is revealed, which, during the whole of that period, has remained just where placed by Roman hands, open to the elements, amid varying scenes of turmoil and struggle during the growth of the British Empire. The portion of its masonry connected with the wall-pier westward of the "joint" has already been mentioned, but that eastward of it is of comparatively modern date, and encloses a portion of the recessed wall and window jamb, with the part of the splay proceeding from it which would connect with that seen in the interior, near the south-east doorway. This window was probably the eastmost of the range, the pier in that direction, after continuing a few feet forming the south-east quoin of the Basilica.

A moot point may be now advanced; it is seen that to this end of the south wall John de Villula connected his east end work; would he not have adopted a similar course at the other end when building his west front, and, further, have retained the entire outer walls, just as he adopted the Basilica floor level, and most probably much of the floor itself? In fact, does it not become almost a certainty, if we consider the improbability of his incurring the vast labour and cost of pulling down these massive walls and the replacing them with others almost similar? And if for a moment the pulling down is accepted, would he have retained at either end the tall gaunt block nearly 50 feet in height? I trow not, most certainly.

Later, in the sixteenth and seventeenth centuries, when building the present Perpendicular structure, having windows of much greater width, the most advisable course, both structurally and financially, would have been to remove the walls down to the level needed for the new sills, allowing the lower part to remain, and the work affords indication at several points that this was the course adopted.

Regard for your space holds back other details, although I would urge the opening out of these fragments by removing a little of the late masonry now hiding them. As the west wall of the Norman south transept was built up to, and on reaching the sill level passed through, the window opening and connected with the south pier of the Norman arch near the south-east doorway, it is most probable that the greater part of the sills of both windows, and the arched head of the lower window, remain, together with the jamb and splay. If opened out, it would add another to Bath's numerous antiquities, the interest of this one being greatly increased from its Roman origin, and by its subsequent continuous incorporation in the Norman Cathedral and the present Abbey Church.

ART IN LONDON.

WAR AND PEACE.

At the Leicester Galleries the autumn season opens with three exhibitions—two devoted to the all-absorbing world-topic of the war, the third breathing a particularly peaceful air, and it is with this we will first deal.

Miss Eleanor Fortescue-Brickdale has a style and a charm all her own; her milieu is a certain mediævalism of treatment which renders peculiarly appropriate the class of subject which she has here illustrated. Old English songs and ballads might, to all appearances, have been written by Lyly, Herrick, Shakespeare, and others, with the very object of having Miss Fortescue-Brickdale as illustrator, for the words and the illustrations dovetail into each other so accurately; and water-colour medium is of all media the most suitable for the purpose. In No. 51, where the chief object is one of our fine Renaissance monumental tombs, the artist's treatment of the vari-coloured marbles is extremely sympathetic. A note of slightly adverse criticism of the exhibits is to be sounded when we remark that as regards garden-landscape, there is too much individualising, too little massing, though this is not invariably the case, as bear witness Nos. 56, 63, 66, and 70. The composition is habitually good. Two of the best out of a good collection are the courtier of Charles II.'s reign (58) and the Puritan (66). "The Undiscovered Country" shows very fine treatment of foliage and verdure, light and shade. The "Magnificat" exhibits a leaning towards pre-Raphaelitism, which does not commend itself to general acceptance; the back elevation of a corseleted warrior (75) is extremely inartistic treatment; and while Puck (in No. 76) is liliputianised, it is true, it is due to the absurd exaggeration of the butterfly, which throws the landscape quite out of scale. In other respects, however, we have nought but praise for Miss Fortescue-Brickdale's excellent show.

The collection of war cartoons by Mr. E. J. Sullivan is shortly to be published by Mr. Heinemann under the title of "The Kaiser's Garland." Painful, tragic, realistically imaginative (if this apparent contradiction of terms may be condoned), it will be beyond question a book to add to an art-lover's collection. For assuredly art is not limited to works of a pleasing and poetic nature; it is far more embracive, and must certainly include these cartoons, which deal so sympathetically with the world-tragedy of to-day. The central idea is the degradation and brutalising of the German Empire, typified by Mr. Sullivan as a race of anthropoids doing worship to the god Moloch. And throughout we are shown the half-demented Kaiser as at once the primum mobile of his people and the vicegerent of his god. At times a minor note is struck, when the inane Crown Prince of Germany is introduced, and one of the most telling of this group is the "Jackdaw of Rheims." The "scrap of paper" also receives adequate attention from Mr. Sullivan, who is to be congratulated upon his masterly series of black-and-white drawings.

French artists in relation to the war have also been prolific. It is, in most instances, necessary for one to project oneself into the Frenchman's ego in order to gain an appreciation of the work. There are some notable exceptions to this, as in the art of M. Ochs, whose virile crayon sketches deserve all praise; the armchair critic in one drawing and the Entente wooers of Italy in another are very good. M. Vallotton is represented by a series of portraits in black-and-white outlines; there is a woodenness about them which detracts from their obvious merits, Albert of Belgium coming off worst and the Crown Prince of Germany the best. M. Masereel has a virile sketch of convalescent soldiers in "Les Premiers Pas," and M. Poiré's lithograph of "Le Statue de Strassbourg" is highly artistic. Other good work is contributed by MM. A. Roubille, Poulbot, Jules Grün, Jodelet, and D. Hampol; the last two are among those sending drawings from the trenches. The spirit of the Entente shall operate against our pillorying any artist by name, nor truly should the trench-drawings be judged critically; but even with the hundred other contributions we will pursue a similar line, merely noting that the work is for the most part, if not entirely, of an ephemeral class.

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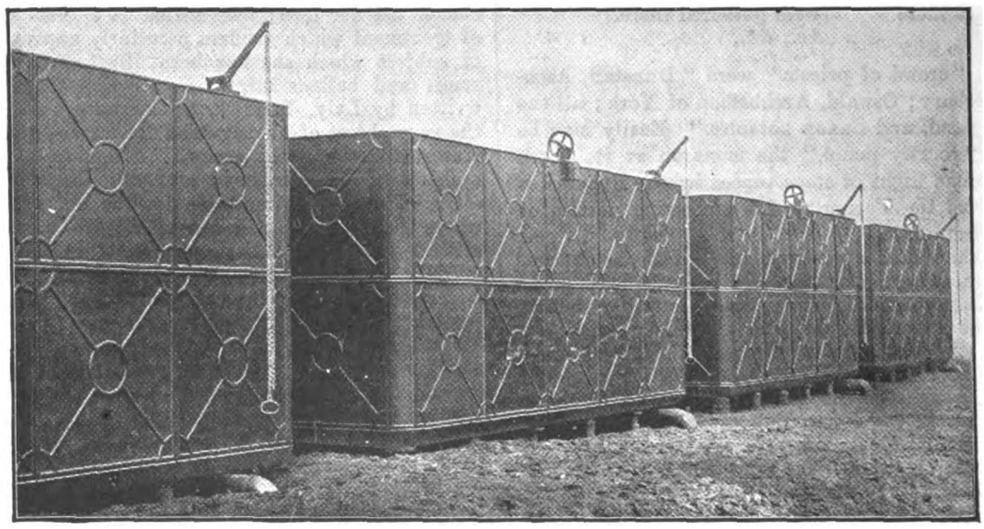
Is it the war which is responsible for the fact that less than 50 per cent. of the Society's members are exhibitors in this autumn exhibition? Is it also the all-pervasiveness

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of the same war which has exercised a malign influence upon the quality of much of the work exhibited? Be this the cause or not, there are the patent facts of a diminished number of works and of a poorer quality of art as compared with previous shows. We usually recognise in the work of the President, Mr. L. Burleigh Bruhl, a virility kept under control which has a certain individuality imparted to it; but in most of the seven works from his brush we find nothing to detain us, an exception being No. 86 ("At Maldon"). Mrs. M. J. Moberly also proves disappointing. The largest and best show by any one painter is that contributed by Colonel H. R. B. Donne; he has a peculiarly happy directness in seizing upon inspiring objects and in creating a good composition; in his work, too, there is something of the brightness and clarity which we always note in Prout's art, and Colonel Donne's five contributions may be regarded as the pièces de resistance in the exhibition. Mrs. E. B. Patterson's "Michaelmas Daisies" is a fine study, and in "Laurestinus" she has very well portrayed the accessories. The Vice-President, Mr. W. S. Stacey, shows notably good and virile work in "A Trout Stream, South Devon," and has realistically presented the plastered façades to the cottages in "Combe in Teignhead," but the latter painting lacks modulation. Mr. Collins shows good composition, pretty colouring, and sympathetic rendering in "Shearing Time, Inholms." Miss Florence Lewis has an exceptional piece of good colouring and massing in "Cottage in Amberley," and her "Misty Evening in Amiens" possesses a quality of mystery and once again such good massing as noted in the previous work. Attention must be directed to Mr. C. Topham Davidson's "Truro Cathedral," where the desirable quality of mystery is in evidence; the cloud-swept moonlit sky, the moonlit water, and the dull mass of the cathedral in the background combine to produce one of the best works on exhibit. "Among the Devonshire Hills," by the same artist, is highly sympathetic, and is delightfully toned. Mr. Conradé's architectural conceptions in "The Old Curiosity Shop" are deplorable. We can heartily commend Miss E. M. Brace's flower painting in "L'Entente Cordiale." Mr. Cafe's two architectural subjects are portrayed without any touch of inspiration, nor is this quality much in evidence in Miss E. M. B. Warren's "Henry VII.'s Chapel"; this work shows ambition, nor is it untouched with merit, but the atmosphere of the Abbey is nowhere apparent. Mr. R. S. Standen has produced in "Fareham, Hants," a morceau such as might have been painted by Mrs. Allingham, and his "Ditchling Common" is also attractive. There are a few more works fully worthy of notice, but in the exhibition, as a whole, we were frankly disappointed.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Honour.

Sir,—I observe that you are publishing a list of architects and architects' assistants who are serving the country at this time.

It gives me great pleasure, therefore, to inform you that the following two assistants of mine have taken their places in the ranks and done their little bit, and still have power to do a bit more:—

Lance-Corporal C. Hoffman, 1/3rd Lancashire Company (Works), Royal Engineers, joined last October, shortly afterwards went out to Malta for training, and went to Dardanelles in May, invalided to Alexandria with rheumatism and dysentery, now convalescent, and when last heard from was awaiting return to Dardanelles.

Corporal Jack Cousins, 1st Warwickshire Yeomanry (T.F.) Cyclists' Corps, despatch rider, left me on the outbreak of war, went out to the Dardanelles in August, shot through thigh, and now, or recently, in hospital at Bradford, convalescent.—Yours, &c.,

J. H. Swainson.

Wrexham: Oct. 24.

[Our Roll of Honour included the name of Mr. Hoffman but not that of Mr. Cousins. The necessary correction will be made in the first of the supplementary lists which we shall issue from time to time.—Ed.]

A.A. Red Cross Voluntary Aid Detachment.

Sir,—A second series of lectures on First Aid is being arranged in connection with the above detachment.

The course will consist of six lectures, and will be held at the Architectural Association on Monday evenings, commencing on November 1, at 6 p.m.

The detachment is now supplying orderlies for various London hospitals and further recruits are urgently needed.

The work is purely voluntary and part-time only. Full particulars can be obtained from the Quartermaster at 18 Tufton Street, Westminster, S.W.—Yours, &c.,

F. R. Yerbury, Quartermaster.

18 Tufton Street, Westminster, S.W.:
October 25, 1915.

A.A. War Service Bureau Recruiting for the Army.

Sir,—The Architectural Association War Service Bureau, which has already recruited nearly 1,000 men for the various specialised branches of the Service, is now endeavouring to raise 100 men for the 2nd London Sanitary Company, R.A.M.C. (T.).

The work required of members of the corps should specially appeal to members of the architectural and surveying professions, and others with a good knowledge of sanitary matters.

I shall be very glad to forward particulars of rates of pay, &c., to anyone sending a stamped and addressed envelope.

The War Service Bureau is still open to assist all those connected with the architectural and surveying professions and building trades by supplying them with information and assisting them to enlist in those special branches of the Army where their professional training is likely to be of value.

Men are also required for the Home Counties Divisional Artillery for Imperial Service, ages nineteen to thirty-eight.

Aptitude for map-reading, &c., is an advantage.

Arrangements will be made for parties of men enlisting through the Bureau to be kept together.—Yours, &c.,

F. R. Yerbury, Secretary.

Royal Architectural Museum,
18 Tufton Street, Westminster, S.W.: Oct. 26, 1915.

Loos.

Sir,—Now that we have won Loos from the enemy, and that the place is in ruins, I may, I think, safely mention, without revealing any facts useful to the enemy, that there was here, till the war reached the village, "une maison centrale de détention, dans une célèbre abbaye fondée en 1140, et réédifiée en partie en 1732," also a modern Town Hall in the Renaissance style; and the church (1835) was dedicated to Our Lady of Grace, and was much frequented by pilgrims.—Yours, &c.,

John A. Randolph.

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A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Buckinghamshire.

High Wycombe.—House, Lindsay Avenue: additions, for Messrs. Broom & Wade.

"Frogmore": additions, for Mr. J. Shorts.

Four houses, Ogilvie Road, for Mr. F. Nash.

Workshop, Newland Meadow, for Messrs. F. & D. Youers.

Cheshire.

Little Sutton.—Cinematograph theatre, Station Road. Mr. Shennan, architect, 35 Dale Street, Liverpool.

Macclesfield.—Cinematograph theatre, Jordangate, for Mr. E. L. Goddard.

Stockport.—St. Saviour's Church, Great Moor. Mr. R. B. Preston, A.R.I.B.A., architect, Diocesan Chambers, S. King Street, Manchester.

House, Deansgate, Manchester. Messrs. R. Rathbone & Sons, contractors, Bolton, New Road (£4,750).

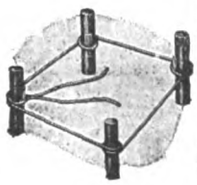
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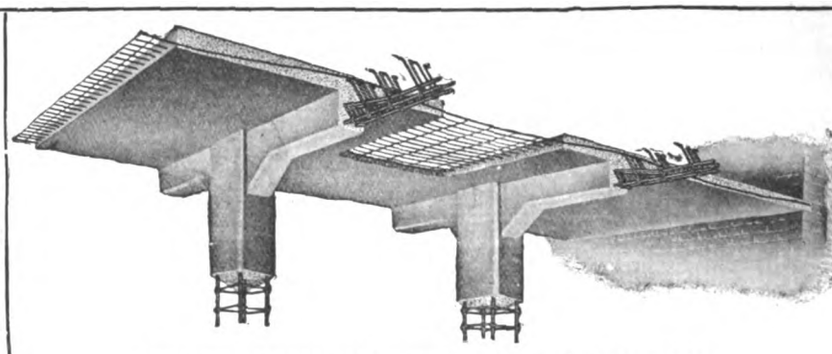
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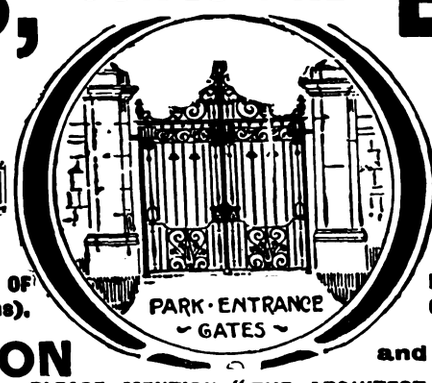
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Holsworthy.—Offices, Station Road, for the Board of Guardians and R.D.C.

DORSET.

Dorchester.—Dental surgery, Wadham House, High West Street, for Mr. A. E. D. Prideaux.

DURHAM.

Ferry Hill.—Two houses, Bede Terrace: additions, for Mr. J. Talantire.

Jarrow.—The "Crown and Anchor" Inn, Chapel Road: additions, for Messrs. W. S. Reid & Co.

GLOUCESTERSHIRE.

Warmley.—Tuberculosis dispensary and school clinic, Soundwell Road.

HEREFORDSHIRE.

Ledbury.—Proposed infants' Council school.

LANCASHIRE.

Ramsbottom.—Three houses, Dundee Lane, for Messrs. Platt & Rogers.

MONMOUTHSHIRE.

Newport.—Banking premises, Commercial Street: additions. Mr. T. B. Whinney, F.R.I.B.A., architect, 8 Old Jewry, London.

Houses, Barrack Road. Mr. F. R. Bates, architect, Westgate Chambers, Commercial Road.

Houses, Conway Road. Mr. H. Budgen, F.R.I.B.A., architect, 95 St. Mary Street, Cardiff.

STAFFORDSHIRE.

Chase Terrace.—Co-operative Stores: addition.

Streetly.—House, Hardwick Road, for Mr. F. Foden.

Fish and game shop, by Streetly Station, for Mr. Brown (of Walsall).

SURREY.

Richmond-on-Thames.—Two houses, Manor Road, for Mr. A. E. Peirce.

WARWICKSHIRE.

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Coventry.—Ten houses, Queensland Avenue, for Mr. C. A. Anelay.

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Three houses, Queen Mary's Road, for Mr. J. Clifton.

House and alterations, Stoney Stanton Road, for Mr. C. A. Newbold.

Two houses, Wyley Road, for Messrs. Robinson Brothers.

Five houses, Craven Street, for Messrs. Aston & Greenhill.

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Hampton-in-Arden.—Garage, "Tredagh," Old Station Road, for Mr. Summers.

Over Whitacre.—"The Firs": additions and alterations, for Mr. R. J. Earle (of Atherstone).

Wishaw.—Stables, &c., Ryecroft Lane, for Mr. J. Edkins (of Erdington).

WORCESTERSHIRE.

Evesham.—Premises, Bridge Street and the Alley, for Messrs. Boots, Ltd.

YORKSHIRE.

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Keighley.—Two houses, Wheathead Lane, for Messrs. Crossland & Simpson.

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Royd Works: fitting shop, for Messrs. Summerscales, Ltd.

WALES.

Mumbles.—Villa, rear of Mons Terrace, Newton, for Mr. A. B. Beer.

St. Asaph.—Kinmel Camp: garage and cottage. Messrs. W. A. Richards & Co., contractors.

SCOTLAND.

Aberdeen.—Business premises, North Esplanade West: additions and alterations, for the Scottish Co-operative Wholesale Society. Mr. W. Mercer (of Glasgow), architect.

Business premises, Holburn Road: additions and alterations. Messrs. Sutherland & George, R.I.B.A., architects, 26 Crown Street; also

Picture house, Wales Street.

Picture house, rear of 475 Union Street. Mr. G. Watt, F.R.I.B.A., architect, 17 Union Terrace.

Sawmill, Wellington Road and Portland Street. Mr. W. E. Gauld, F.R.I.B.A., architect, 11A Dee Street.

Stables, Powis Lane, for Mr. W. Mullen. Mr. R. R. Gall, architect.

Jute Works, Froghall Terrace: additions. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

Workshops and stores, Mansefield Road, for Messrs. Cordiner & Son.

Broughty Ferry.—Cottages, Beach Lane: additions, for Mr. J. P. Crystal.

Dumbarton.—Eight blocks of workmen's cottages, Geils Avenue.

Dundee.—Store, William Lane, for Messrs. A. M. Macdiarmid & Co.

Montrose.—Parish Council offices, John Street. Mr. D. W. Galloway, architect, 2 Market Street, Brechin.

IRELAND.

Belfast.—House for assistant harbour-master.

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Newcastle West.—Carnegie Library. Mr. J. D. Leahy, architect.

THE Council of the Surveyors' Institution have nominated Mr. Howard Martin, past president, 27 Chancery Lane, W.C., as the representative of the Institution on the Tribunal of Appeal under Section 176 of the London Building Act, 1894, to fill the vacancy caused by the death of the late Mr. Herbert T. Steward.

THE Belfast Cathedral Board at their last meeting, under the presidency of the Bishop of Down, passed the following resolution: "That the Board of St. Anne's Cathedral, Belfast, on this their first meeting since the death of W. H. Lynn, R.H.A., desire to place on record their deep and sincere regret at the loss they have thereby sustained. They recognise that to him, in conjunction with the late Sir Thomas Drew, they are indebted for the conception and elaboration of the plan of the Cathedral. They would also wish to acknowledge their indebtedness to him for the constant care he bestowed upon all that concerned the fabric since Sir Thomas Drew's death. They feel that in the present unfinished state of the Cathedral his death causes a loss that it will be almost impossible to supply, for to his genius they looked for guidance and decision in the many problems that are before them. They further wish to record their deep gratitude to him for his generous gift some years ago of the west window, and for the munificent bequest of £5,000 made by him to the Building Fund of the Cathedral."

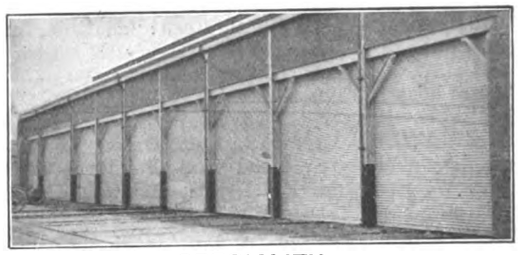
THE new hall and offices erected in Durham city by the Durham Miners' Association have just been formally opened. The premises, for which the contract price was £21,375, have a front facade of about 160 feet, and a large hall seating 300 delegates projects from the rear. On the ground floor at the front offices for the general secretary and the executive secretary, with a strong-room in connection with the latter, also waiting-rooms and a committee-room to accommodate about thirty. On the first floor are offices for the financial secretary and treasurer, with a strong-room, also a muniment room and offices for the cokemen's, enginemen's, and mechanics' secretaries. The offices for each department are arranged in suites of two rooms, one being for the principal and the other for his staff. The basement of the building will be used as a storeroom and for the heating apparatus. The contract was let to Mr. C. Groves, of Chester-le-Street. The architect is Mr. H. T. Gradon, A.R.I.B.A., of Durham.

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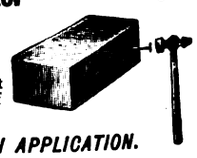
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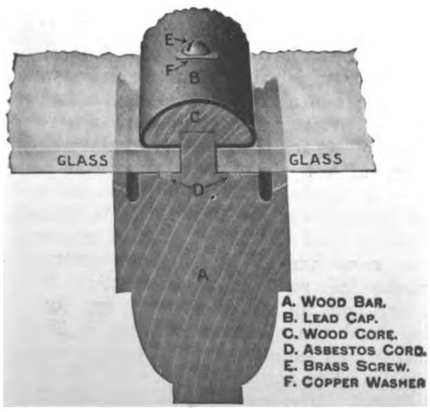
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, November 5.

Town Planning Institute : Paper entitled "Limited Owners and Town Planning," by Mr. J. S. Birkett, M.A., at 6 P.M.

Monday, November 8.

Architectural Association : Annual general meeting. Paper entitled "The Military Hospital at Cambridge," by Dr. A. E. Shipley, F.R.S., M.A. (Master of Christ's College, Cambridge), at 6 P.M.

Surveyors' Institution : Opening Address of the Session by the President, Mr. John Henry Hanson, at 8 P.M.

Victoria and Albert Museum : University Extension Lecture VI. on "St. Peter's and other Renaissance Churches of Rome," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Wednesday, November 10.

Manchester Society of Architects : Paper entitled "In Greece and on Some Islands in the Ægean Sea," by Mr. John B. Gass, F.R.I.B.A., at 6.30 P.M.

Chadwick Public Lecture : Paper entitled "Emergency Military Hospital Construction," by Mr. A. Saxon Snell, F.R.I.B.A., at the Royal Institute of British Architects, Conduit Street, W.

Thursday, November 11.

British Museum : University Extension Lecture VII. on "Greek Architecture : the Hellenic Period," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

BUILDING STONES OF QUEBEC.—II.

GRANITE exists in enormous quantities in the Province of Quebec, but as an industry the impression we derive from Dr. Parks' Report* is that at present the quarrying of granite is only in its infancy. Several of the quarries are worked by small owners with small staffs and primitive equipment. For example, a very good-looking granite in varied tones of grey, with an extensive range between nearly black and almost white, used in the basement of the Parliament Building, Quebec, is obtained from a quarry worked by only fifteen men, and whose sole equipment is a hand-derrick.

True granite and its allies in the Province of Quebec are quarried in two general regions which are very dissimilar geologically. The ancient Pre-Cambrian crystalline area of Northern Quebec is on one side of the St. Lawrence, and contains enormous ranges of granite and granitoid gneisses, but has been less exploited than the second general region, which is situated south of the St. Lawrence, in the southern part of the Eastern Township, where granite is quarried from igneous masses of later age than the surrounding sedimentaries.

The northern region is divided by Dr. Parks into the following areas, which are, for the most part, widely separated, viz., Rivière à Pierre, Roberval, Ottawa, Argenteuil, St. Jerome. From our point of view the most important at present is the Argenteuil area, where extensive operations have been carried on for many years, resulting in a large production of building and ornamental stone. The stone is a rather coarse-grained granite, with a peculiar pinkish to chocolate colour. The Argenteuil area is about 30 miles from Montreal, and is connected by a spur line of about 5 miles in length with the Canadian Pacific Railway.

The most important quarries of the Argenteuil area are those of the Laurentian Granite Company, Ltd. The stone is of very uniform colour and grain, but when polished a banded variation in colour is more perceptible. Occasional black knots and thin black streaks occur, but they are not sufficiently numerous to prevent the extraction of clear stone in large blocks. The stone is composed of large crystals of orthoclase, rather smaller crystals of quartz, and a still less amount of blackish-green mica. The felspar crystals are considerably decomposed, and have been invaded by reddish stains, which have resulted from the decomposition of the mica or of some ferruginous materials accompanying it. The weight per cubic foot is 164.48 lb., the pore space 0.613 per cent., and the drilling factor 4.1 mm. Crushing strength (dry), 37,590 lb. per sq. in. The quarry is well equipped with machinery. The prices are from 50 cents to 75 cents per cubic foot f.o.b. quarry for rough building blocks, whilst rough monumental blocks are valued at from 90 cents to $1 per cubic foot f.o.b. quarry. Paving blocks, rubble and crushed stone are also supplied, and granite from the quarry has been shipped in large quantities to Montreal, Ottawa, Toronto, and even to Cuba.

The St. Jerome area is not far distant from the Argenteuil. The rock here is a gneissoid granite in which the lamination is much more pronounced in some places than in others, and so, for the most part, unsuitable to purposes of fine construction; but there is some stone of a more strictly granitic structure, giving a medium to fine-grained light reddish granite composed of pinkish orthoclase, white quartz, and a small amount of black hornblende in small crystals.

The Rivière à Pierre area is situated about 40 miles from Quebec, and is also directly connected with Montreal by the Great Northern Railway. The granites of this area in colour are usually of varied tints of grey, being composed of white quartz and felspar with black hornblende and mica. Sometimes the felspar is pink-tinted, and naturally the exact proportions of the variously coloured constituents vary. For building purposes the use of the stone has occurred principally in Quebec, as the area has been worked on a very small scale with small staffs and primitive equipment.

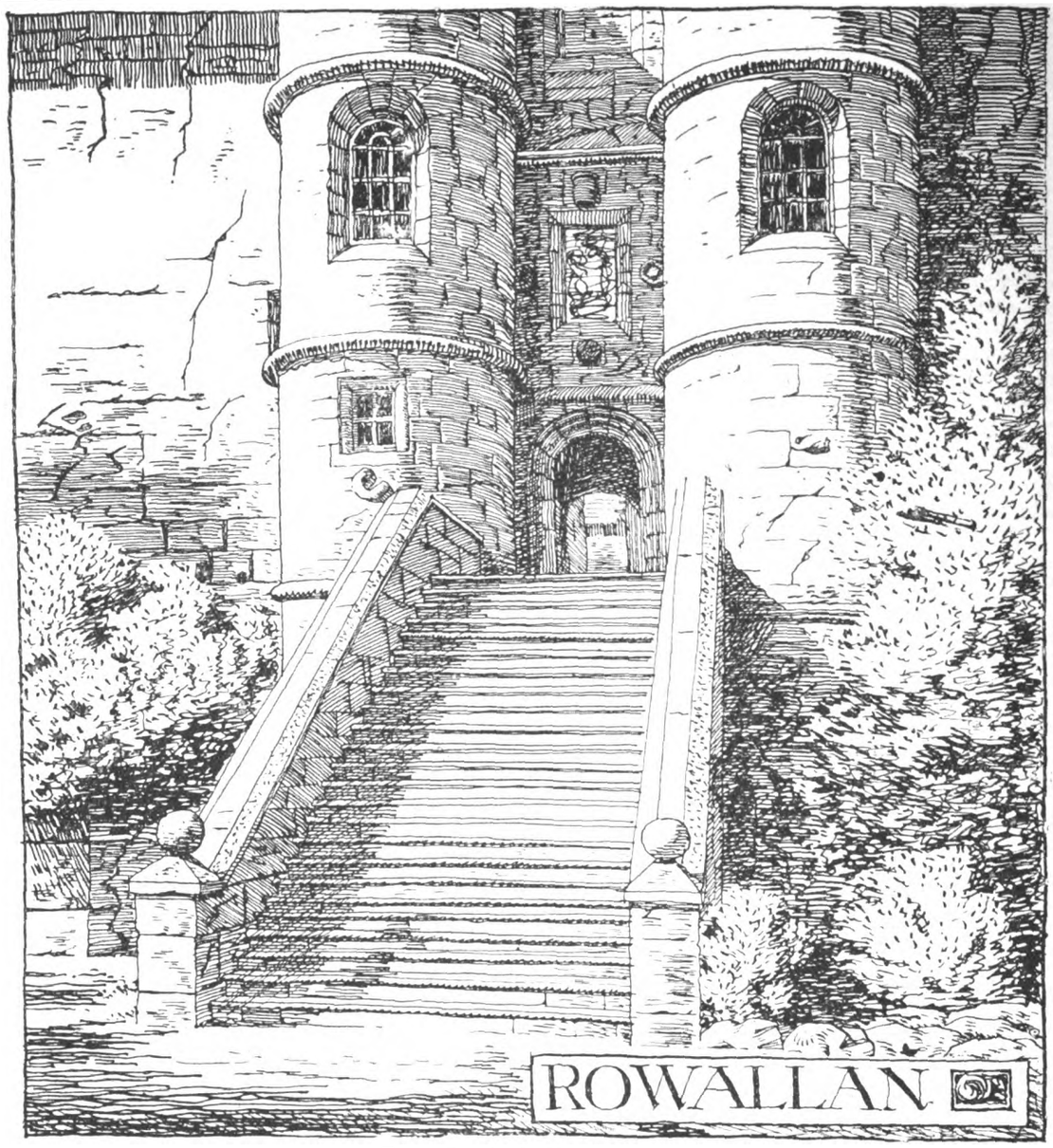
Roberval is about 140 miles north of Quebec, and has two main varieties of granite, red and blue in colour. The stone reminds us somewhat of our own Shap granite, but with a darker mineral, chiefly biotite with a little hornblende and minute grains of magnetite, enclosing and interspersing the light red orthoclase felspar. The so-called "red" variety has a greater profusion of red orthoclase more strongly tinted than that in the "blue."

The Ottawa area appears to contain only one small quarry, which, however, produces a granite of fine grain and very pleasant light reddish colour, the felspar components being abundant and larger in crystals than those of the quartz, which are very small, whilst black mica occurs in small amounts only.

We now come to the granites of the Eastern Townships, the important areas of which Dr. Parks arranges as follows:—Stanstead; Magoons Point; Megantic; Stanhope. Of these, Stanstead contains the belt of granite close to the international boundary, near Lake Memphremagog, which is described as the most important producer of granite for building purposes in the

* "Report on the Building and Ornamental Stones of Canada." Vol. III. Province of Quebec. By Wm. A. Parks, B.A., Ph.D. (Ottawa: Government Printing Bureau.)

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From a Drawing by Mr. W. G. ALLEN.

Dominion of Canada. The formation owes its value to the excellent sheeting, and the pronounced rift and grain, which render quarrying operations comparatively easy. The more important stone, and the only one now being quarried, is a medium grained grey granite of very pleasant appearance. Another variety known as "silver grey," which is a lighter coloured stone, was formerly quarried and used chiefly for monument bases, but there is no production of the type at present. Stanstead stone has been used in a great number of buildings in Montreal, Toronto, Ottawa, Quebec, Sherbrooke, and also in the western cities of Edmonton, Regina and Calgary. Amongst the physical properties, the following may be noted:—Weight per cubic foot, 166.552 lbs.; pore space, 0.789 per cent.; crushing strength (dry), 25.250 lbs. per square in.; drilling factor, 7mm. Thus Stanstead stone is a light-weight granite, and its pore space is rather high for this class of stone. The frost-resisting properties are, however, satisfactory. The crushing strength is not high for a granite, and the transverse and shearing strengths are rather low. The drilling factor is high for a granite, and the stone should be capable of being carved with facility. The total present production for building and monumental purposes is about 95,000 cubic feet per annum. In addition to this, nearly two million paving blocks are made every year. The stone from the different quarries in the area does not differ essentially in colour or structure. The chief constituent is orthoclase felspar, with which is associated a considerable amount of plagioclase. Quartz is present in less amount, and black mica is scattered throughout in small flakes. There are three firms with large and well equipped quarries—the Stanstead Granite Quarries Co., Ltd., Mr. Samuel B. Norton, and Mr. James Brodie, and several smaller owners. The prices run about 40 cents per cubic foot, f.o.b. quarry siding for building stone, and from 45 cents to 70 cents for monumental blocks.

Granite from the Magoons Point area closely resembles the Stanstead stone both in colour and structure, but the production is small, though there is little doubt that stone of large size could be easily quarried and loaded into scows on Lake Memphremagog. The Megantic area is situated on the shore of Lake Megantic, and furnishes a stone finer in grain than the Stanstead stone, but not so clear in colour owing to a tinge in the quartz crystals. It is a harder and stronger stone than that of Stanstead, though a little lighter in weight. The price for building stone is 40 cents per cubic foot f.o.b. quarry siding. Most of the quarries except that of Lacombe and D'Allaine area are out of commission. The quarries of the Stanhope area are also in the same condition, only one firm, the Frontier Granite Company, actually raising stone at the present time.

The term "black granite" is used by quarrymen to designate the dark coloured igneous rocks in general, and the only black granite now sold in the market as a monumental stone in the province of Quebec is that quarried at Mount Johnson, but there are others which have been quarried to a small extent for building and

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ornamental purposes, but much of the stone is too hard or too unstable to be of use for building. There is also considerable wastage through the occurrence of black knots or of fine white lines which destroy the character that should obtain. Good stone in roughly squared blocks is valued at 90 cents per cubic foot, f.o.b. quarry siding, which compared with the price of true granites is sufficient explanation of the undeveloped character of the industry.

ROWALLAN CASTLE, AYRSHIRE.

THIS castle, while not altogether characteristic of the buildings of its class, is an interesting specimen of the sixteenth century. The absence of such features as turreting at the angles and corbelling is very noticeable. The house is planted round a small knoll, the summit of which forms the courtyard. This has necessitated the five flights of steps which rise from the lower ground to the level of the courtyard. These steps, the arched entrance doorway, and the flanking towers are illustrated by the accompanying sketch. The whole group composes into a very noble and effective feature in a front of about 62 ft.

The towers are divided into four stages by heavy string courses and covered by conical roofs. They are each about 8 ft. 6 in. in diameter.

The eastern portions of the house, with this entrance doorway, were built by John Muir and his wife, Marion Cunningham, in 1562. We are told of this John Muir that he "took great delyte in police and planting. He builded the forwark, backwark, and woman house from the ground. He lived gratiouslie and died in peace, the year of his age 66, and in the year of our Lord 1581."

The entrance hall, kitchen, and other apartments are on the south side of the court, but the buildings on the north side are now quite ruined. The fact that Rowallan was the birthplace of Elizabeth Muir (first wife of King Robert II.) suggests the existence of a much earlier building than the present structure. Possibly the ruins on the north side are the only remains of the original house.

NOTES AND COMMENTS.

WE regret to have to record the death of another of "The Architect" Travelling Students in the war. Lieutenant Edmund Herbert Gibson, youngest son of Dr. Gibson, of Harrogate, held our Studentship in 1912. On the outbreak of war he joined the Royal Naval Volunteer Reserve, and in February was appointed sub-lieutenant, being sent down to the camp at Blandford with 160 men to prepare roads. He went to the Dardanelles in June, and did strenuous work in the trenches. He was gazetted lieutenant from the 18th ult. On the 23rd ult. he was severely wounded at the Dardanelles, and died two days later.

Builders nowadays are so loaded up with liability for all sorts of damage to all sorts of property and person that a building contract, without the help of insurance companies and underwriters, would be a gamble of the wildest description. But the case of Elliott *v.* C. P. Roberts & Co., Ltd., shows how easy it is to gain the ear of a sympathetic jury. Mr. Justice Lush, however, set aside the jury's award on the point of law.

Messrs. C. P. Roberts & Co., Ltd., builders, of Tyssen Street, Dalston, entered into an agreement with the London County Council to rebuild the school in Bonner Road, Bethnal Green, and it was a term of the contract that they should afford facilities to any other tradesmen employed by the Council, including the reasonable use of any scaffolding. Across an open space a gangway consisting of two planks was laid from a corridor to a class room. It was safely used every day by the workmen for three months, and for six weeks by Mr. Sidney Elliott, a hot-water engineer carrying on business at Copley Street, Stepney. On December 21 last, however, Mr. Elliott, while walking across the gangway, fell a considerable distance, and the serious injuries he sustained had resulted in paralysis. On the ground that Messrs. Roberts had been guilty of negligence in not providing a safe and suitable gangway, properly secured to prevent it slipping, he brought an action against them to recover damages. Defendants replied that the gangway was safe and suitable for the use of the men, but at the trial the jury found for the plaintiff and assessed the damages at £2,000.

Counsel for defendants argued that plaintiff had not made out any case, as defendants owed no duty to him beyond that of not exposing him to a concealed danger or trap, which it was admitted they had not done.

In giving his judgment his Lordship pointed out that plaintiff did not allege that he was employed by defendants or that he made any contract with them. It was clear that they were under no duty to him to provide a gangway which was safe in fact. They were under a contractual duty to the London County Council, but not to plaintiff, and a stranger to the contract could not take advantage of it. Defendants did not invite plaintiff to use the gangway for the purpose of some business in which they were mutually interested, and their only duty to him was to expose him to no hidden traps. There would be judgment for defendants with costs, and the £200 paid into court by them would be paid out to their solicitors.

It was intimated that there would be an appeal.

In a lecture on "Letchworth in War Time," delivered at Edinburgh by Mr. Harold Craske, the lecturer told his audience that if the counsels of some had prevailed, the Garden City Company would have practically closed down and lived on its income, without any attempt at progress. That would have meant dismissing a large number of men above military age, and the effect upon the town generally would have been serious. The Company, for the sake of the scheme itself, and in consideration of people interested in Letchworth in a business and commercial way, thought it better to adopt a courageous policy and keep everything going as far as possible. This course proved to be the right one, and in the industrial and financial upheaval Letchworth had steadily improved its position. The most important industry gained since the war was that of a Belgian engineering firm from Antwerp, who had built large works and a foundry in Letchworth, and employ 800 men.

The subject of the dedication of churches is a very interesting by-path of archæology, and its full exploration reveals much of the humanity of the past. Therefore we can appreciate the reception accorded to a lecture by the Duke of Argyll on "Certain of the Ancient Columban Dedications in the Celtic West." In his paper the Duke of Argyll referred to the fact that during the last twenty years much attention had been bestowed upon the dedications of churches and chapels in English dioceses, and many had been corrected by a return to the original and primitive inscriptions, which had been possible owing to the wonderful richness of records preserved in diocesan registers and the painstaking researches of antiquaries. In recent years there had also been a marked revival of interest in those of our Celtic saints who were not only the primitive patrons in the tutelary sense of the word, but the actual founders during their numerous journeyings of chapels and churches and caves in the Celtic West. His Grace dealt with many of the ecclesiastical remains in Argyllshire, and through his access to old family charters and careful personal inspection he was able to shed light on some matters that had been the subject of archæological controversy. Thus it had been claimed that on the island of Innishail on Loch Awe there had been a Cistercian nunnery, but he found from old records that the building there had always been spoken of as the parish church. His visit of inspection to Innishail had been fruitful in the discovery of traces

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of old fish ponds, which had been used by those connected with the old church. His researches led him to the conclusion that there had been no wilful obliteration of primitive dedications, outside Cornwall and Brittany. All along even the East Coast the old Celtic saints had survived, not in sporadic instances but in practically every parish, and that applied with additional force to the West Coast.

It was bound to come. The analogy between the upheaval in art of all previously accepted canons by cubists, futurists, vorticists, *et hoc genus omne* of sensationalists, and the present catastrophic conflict of nations and inversion of peaceful civilisation has produced a fresh idea in exposition of prophecy. Daniel and St. John the Divine have served their turn to many ingenious commentators, and now the Vice-Chancellor of Leeds University, Mr. M. S. Sadler, has sized up the recent contortionist movements in European painting and sculpture as signs of tension and defiance which were premonitory of social revolution or of war. Masterfulness in self-expression, impatience of conventions, admiration for power, readiness to run the hazard of speculative adventure, and scorn for the comfort and caution which claimed to be civilisation had been the temper of many of the most influential artists of the last two decades. This mood had grown more intense up to the moment of the explosion of European war. The works of Cézanne, Gauguin, and Vincent van Gogh, of the Cubists and the Futurists, of Picasso, Matisse, and Kandinsky, had been signals of approaching conflict. First and chiefly in France and in Flanders, afterwards in Germany, in Serbia, in Russia, in Italy, and also in England, the sensitive mind of the painter or sculptor had felt the oncoming of the cyclone.

Lest this should seem a fanciful prophecy after the event, Mr. Sadler quoted words which he had spoken at the Conference of the National Union of Women Workers in Hull, on October 9, 1913: "In painting and in music, arts which prophesied the future, there were many signs of rebellion against the habit of forbearance and harmony to which, in the seventeenth century, the Marquess of Halifax, himself an apostle of intelligent compromise, gave the name of 'trimming.'" . . . The arts revealed the temper of the next generation, and in their present mood the arts of painting and of music were like "voices prophesying war." In December 1913, seven months before the outbreak of hostilities, he had received as a gift from the Russian painter, Kandinsky, a painting in which the artist had expressed himself in free, non-representational design. The pattern of the composition had broken free from orthodox decoration, as *vers libre* departed from conventional metre. The design, strong in structure and balance, suggested hurtling masses in impending collision. The dominant colours were vermilion, black, purple, and blood-red. Some of the lines of the picture called up the thought of swift arrows, aircraft, and exploding shells. After the outbreak of war, he wrote to Kandinsky to inquire whether the painter had meant to predict the struggle which had since turned parts of Europe into a shamble. No, Kandinsky replied; but, when the picture was painted, he had been conscious of a terrible conflict then going forward in the spiritual world.

Before each previous conflict in Europe there had been premonitory signs in art. El Greco and Salvator Rosa heralded the unsettlement of men's minds which issued in the wars of the seventeenth century. Piranesi, Guardi, Georges Michel, and Goya were symptoms of the ferment of the French Revolution. Turner and Constable, Delacroix, and Daumier were precursors of the upheaval of 1848. Courbet forespoke the realism of the Commune; J. F. Millet, the sentiment of humanitarian democracy.

Among more recent painters, Gauguin, in 1895, had declared that modern European civilisation was a disease. Kandinsky, in the spirit of Nietzsche, wrote that "every artist, working under an impulse from within, must go along a path which in some mystical manner has been laid out for him from the beginning. His life is nothing but the fulfilment of a task set for him, not by himself. Meeting with enmity at the start, he carries a message, for the expression of which he must find a way. Then follow desperate searching—pain, great pain—until finally his eyes are open, and he says to himself, 'This is my way.' And he must follow that path to the last hour whether he wants to do so or not."

The Italian Futurists, in the statement of their aims, wrote that they deliberately sought "chaos and clashing of rhythms, totally opposed to one another, but which they nevertheless assembled into a new harmony." And one of their chief objects was "to translate objects according to the force-lines which distinguish them," so that one of the greatest of the Futurist pictures, Russolo's "Rebellion," represented, in the painter's words, "the collision of two forces, that of the revolutionary element made up of enthusiasm and red lyricism against the force of inertia and the resistance of tradition."

Some interesting points with regard to the fraternity of Austin Canons were brought out in a lecture by the Rev. Arthur Gill delivered to the members of the York Archæological Society on the "Augustinian Priory of Warter."

Mr. Gill said the Priory of Warter was founded in 1132, by Geoffrey Fitz Pain, *alias* Trussebut. It was dedicated to the honour of St. James, and belonged to the Augustinian Order, which, as Cardinal Gasquet remarked, was "conventional or monastic, rather than congregational or provincial, that is, the members were professed for a special house, and belonged, by virtue of their vows, to it, and not to the general body of their brethren in the country." But in one point they were not so closely bound to their house as were the monks. The canons were allowed in individual cases to serve the parishes that were impropriated to their houses; the monks, on the other hand, were always obliged to employ secular vicars in these cures. Their houses in Yorkshire were Bolton, Bridlington, Drax, Guisborough, Haltemprice, Healaugh, Kirkham, Marton, Newburgh, Nostell, and Warter. Of the Priors of Warter we knew the names of thirty. Pope Innocent IV. (1243-54) seemed to have been an especial friend to the Canons of Warter. In 1253 Prior Robert was summoned to show why he raised a certain market and fair in Warter to the injury of the free market and free fair of the Earl of Albemarle in Pocklington. The Prior relinquished the market in Warter, and in return the Earl granted the Prior and his successors leave to hold a fair each year on the Feast of St. James, in Warter, but the latter was forbidden by Edward III., in 1328, on account of certain murders committed at it. In Archbishop Wickwaine's Register there is a curious entry, marked in the margin *pro speciebus emendis*; it is a grant by Prior Queldrick on March 4, 1279-80, to the Sub-Prior and Convent of thirty shillings a year to buy "spice" with, for "improvement in singing the Psalms." In 1386 the Sub-Prior, John Claworth, gave evidence in the famous Scrope *v.* Grosvenor case. Being asked if he knew the arms of Sir Richard Scrope, and that they were azure a bend or, he replied that they were painted on a wall in a hall within the Priory, the making of which painting was beyond the memory of man. About the time of the Dissolution, at Warter there were a prior and about ten canons. There is a very full list or inventory of the vestments, jewels, plate, &c., the silver amounting to 570 ounces, and a "trew certificacion of the lenthe and breid of our church, with all other houses coveryd with leyd belongyng onto the monastery of Wartre." In 1899 Sir W. St. John Hope carried out excavations on the site of the Priory, and in tracing the pavement in the choir of the church it was possible to ascertain the position of the steps up to the altar. A grave slab was also discovered. It had been cracked across by fallen material, but was other-

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wise complete, and was in admirable preservation. The slab was of fine sandstone, and measured 6 feet 9½ inches by 3 feet 2½ inches in breadth, with a thickness of 7 inches. It bore the incised effigy of a black canon, beneath a crocketed canopy, with inscription to the memory of Thomas Brydlington, Prior, 1495.

WAR ITEMS.

Mr. H. Percy Harris, M.P., presided over a meeting at the Whitehall Rooms on October 8, to consider the Government Insurance Scheme for War Damage, when Mr. Mark H. Judge proposed the following resolution:—

"That in the opinion of this meeting, the Government scheme for insuring against loss or damage by air-craft and bombardment, which has made the individual citizens responsible for war damage inflicted on them by the enemy, is manifestly unjust, and it is hereby agreed to present a memorial to the Prime Minister urging the abandonment of the scheme and (1) the adoption of an Act recognising national responsibility somewhat on the lines of the Riot (Damage) Act, 1886, or (2) revert to the policy adopted in connection with the Zeppelin raids on the East Coast and the bombardment of Scarborough and Hartlepool prior to the introduction of the Insurance Scheme, and compensate sufferers out of national funds; a condition of the withdrawal to be that the premiums already paid under the scheme should be returned."

Mr. W. H. Southon seconded, and after discussion the resolution was passed unanimously.

A Committee was elected to prepare and present the memorial, and Mr. W. H. Southon (Southon & Robinson), 115A Chancery Lane, W.C., was appointed Honorary Secretary.

ILLUSTRATIONS.

HOUSES AT WEYBRIDGE AND SUNNINGDALE.

The drawings we reproduce to-day show houses designed by Messrs. Tubbs, Messer & Poulter, and were exhibited in the Royal Academy this year.

In our issue of next week we shall give particulars and plans of both buildings.

GOVERNMENT CERTIFICATION OF CEMENT INTENDED FOR EXPORT.

A laboratory for testing cement has now been added to the establishment of the Scientific and Technical Research Department of the Imperial Institute, South Kensington, S.W.

In certain countries, such as the Argentine, the Government has adopted an official specification for cement to which all cement intended for use in the construction of public works must conform. The Argentine Government also requires the certification of such cement by a laboratory recognised for that purpose by the Government of the exporting country.

H.M. Government has now recognised for this purpose the cement-testing laboratory of the Imperial Institute, at which analyses and tests will in future be conducted for British-made cement for contractors, engineers, manufacturers, and others desiring to export cement to the Argentine and other countries in which a Government certificate is required. Firms requiring such assistance are requested to communicate with the Director of the Imperial Institute, South Kensington, London, S.W., who will supply information as to the conditions under which certificates are issued.

During some excavations at St. Leonard's Hospital, York, in the Philosophical Society's Gardens, a small section of cobbled Roman road has been discovered some two feet below the surface. The road is ten to twelve feet wide, and is provided with a channel at the side in the usual manner of the Roman roads. It is believed to form part of a road leading from the river to the camp, and was probably covered at the time of the erection of St. Leonard's Hospital, which dates from the reign of Athelstan. The Philosophical Society propose to complete the excavation, and secure the opinion of Professor Haverfield on the section.

ROYAL INSTITUTE OFIBRITISH ARCHITECTS.

The first general meeting of the Session 1915-16 was held on Monday last, November 1, at the R.I.B.A. premises in Conduit Street, W., at 3 p.m. Mr. Ernest Newton, A.R.A., President, occupied the chair.

The Hon. Secretary, Mr. E. Guy Dawber, said it was his sad duty to announce the losses which the Institute had suffered by death since their last meeting. These losses are exceptionally severe, numbering no fewer than twenty-one members, including four Fellows, five Associates, eight Licentiates, and three Students. Nine among them are young men who came forward at the call of duty to fight in defence of their country and have perished on the battlefield. Their names are:

Lance-Corporal Alexander Wingate, Licentiate, 9th Battalion Highland Light Infantry.

Captain George Pigrum Bowie, Licentiate, 5th Battalion First Canadian Contingent.

Charles Henry Rowed Henman, Licentiate, Royal Naval Division (a son of Mr. Charles Henman, F.R.I.B.A.).

Henry Charles Pullin, Licentiate, Rifle Brigade.

Sub-Lieutenant Aldersey Dicken, Licentiate, Royal Naval Volunteer Reserve.

Private Charles Joseph Newbery, student, 3rd Royal Fusiliers.

Second-Lieutenant James Bernard Millard Walch, student, 2nd Queen's Royal West Surrey Regiment.

Edmund George Dawson Fromant, student.

Captain Frederic Henry Lawson, student, 5th Battalion Northumberland Fusiliers.

He begged to move that there be recorded on the minutes of the meeting an expression of the Institute's deepest sorrow at the loss of these gallant young lives, and that a message of sympathy and condolence be conveyed on behalf of the Institute to their bereaved relatives.

The meeting signified their assent to the motion by rising from their seats.

The Hon. Secretary also announced the decease of Mr. George Bell, Fellow, a Past President of the Glasgow Institute of Architects, and a former member of the R.I.B.A. Council, and of Mr. George Bertram Bulmer, Fellow, Past President of the Leeds and Yorkshire Architectural Society, who also served for a time on the R.I.B.A. Council. With regard to their old friend Mr. Bertram Bulmer, he had an announcement to make which he was sure would be heard with pleasure by all who knew anything of the great and valuable work which is being done by the Architects' Benevolent Society at the present moment. Under the will of Mr. Bertram Bulmer the Architects' Benevolent Society, on the expiration of certain life interests, will benefit to the extent of no less a sum than £3,000. He begged to move that their sincere condolences be offered to the near relatives of their late respected colleagues Mr. George Bell and Mr. Bertram Bulmer.

The Hon. Secretary further announced the decease of George Henry Hunt, Fellow, elected 1891; Graham Nicholas, Fellow, elected 1906; George Lister Sutcliffe, Associate 1891, Fellow 1911; Henry David Davis, Associate 1872, Fellow 1879, Retired Fellow 1903; Edwin Richard Hewitt, Associate 1881; Alfred Lightly MacGibbon, Associate 1901; John Myrtle Smith, Associate 1907; William Henry Gibson, Licentiate; Henry Bedford Tylor, Licentiate; and Philip Arthur Cawte Wilkinson, Licentiate.

Mr. Ernest Newton, A.R.A., then delivered the following

Presidential Address.

Ladies and Gentlemen,—When I had the honour of addressing you at the opening of the Session last year we were under the cloud of a great war in its early stages. Many of us may have hoped that by now this cloud would have lightened and that peace might at any rate be in sight. Unhappily, this is not the case. The cloud is darker and more menacing than ever, and we cannot but realise that peace is still far off. As the months go on, the effect of the war is being more and more severely felt by many architects, and the difficulty of organising means by which we can help those whose work has come to a standstill is a very real one. I will give you a brief outline of what is being done by the various war committees, but I should like to say that we should welcome suggestions of ways in which we could find useful employment for those who are in great need of it. In some cases, of course, it is necessary to give direct financial help, but our aim is to do this as little as possible.

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Nearly every time that I have addressed a meeting since I became President I have asked for funds to carry on the work to which we have set our hands. In the desert of unemployment there are still a few oases, and it is to the dwellers in these fertile patches that our appeal is made. Many personal requests that I have made during the past year have been generously responded to, but it is more than likely that some prosperous people have been overlooked. If this is the case I hope they will consider that this appeal is made direct to them, and that they will subscribe to our War Fund as liberally as they can. I should like to be able to treble the amount subscribed so far.

The sums that have been collected or promised are as follows:—

	£	s.	d.
Prince of Wales's Fund	272	10	0
Architects' Relief Fund	1,258	5	9
Professional Employment Fund ...	390	5	0
Architects' War Loan Fund ...	294	0	0

And in addition there is a considerable sum from the sales of the Artists' War Relief Exhibition, which was opened by her Royal Highness Princess Louise in July and remained open during August and September. The most important of the War Committee's schemes for dealing with unemployment is the Civic Survey and I cannot better explain the character and scope of this scheme than by reading to you the note published in the Institute Journal for August 28 last:—

"It will be remembered that at the outbreak of the war the Royal Institute of British Architects called a meeting of architects representative of the whole profession to discuss the situation, and that this meeting decided to form the Architects' War Committee. The question of unemployment caused by the war was referred to an Employment Committee, which appointed a sub-committee to suggest some scheme of employment the outcome of which should be of permanent value to the community. Their deliberations resulted in a comprehensive and far-reaching scheme for the promotion of Civic Surveys in all the more densely populated districts of the country. A clear exposition of the aims and methods of a Civic Development Survey as contemplated by the sub-committee will be found in a paper by the Director-General, Mr. H. V. Lanchester, read at the Institute last December and published in the Institute Journal of January 9. The scheme having been approved by the War Committee and other interested bodies, a memorial was addressed to the Professional Classes Sub-Committee of the Government Committee for the Prevention and Relief of Distress, appealing for a grant to enable a scheme of Civic Surveys to be set on foot, the responsibility for the work to be in the hands of a committee made up of representatives of the Royal Institute of British Architects, Architects' War Committee, Architects' Benevolent Society, Surveyors' Institution, Professional Classes War Relief Council, National Housing and Town Planning Council, Garden Cities and Town Planning Association, Town Planning Institute, London Society, and other bodies whose services may be of value.

"The appeal met with a favourable response; the Government has sanctioned Civic Surveys in three districts—viz., Greater London, South Lancashire, and South Yorkshire, and has made a preliminary grant of £1,000 for the work. The disbursement of the funds is in the hands of the Architects' Benevolent Society, acting with other Professional Relief Societies.

"The Royal Institute had already made itself responsible for the expenses of the War Committee, and is now providing accommodation for the work of the Civic Survey of Greater London. On July 19 actual work was started in the old Council room adjoining the Institute Reading Room, and arrangements have since been made for the accommodation of workers in the spacious galleries on the ground floor of the Institute premises. At the first meeting of the new workers a short description of the aims and scope of the Survey was given by the Hon. Director for Greater London, Mr. A. R. Jemmett.

"The scheme of the Civic Survey of Greater London is devised for the purpose of collecting and recording (as far as possible in diagrammatic or graphic form) and comprehensively arranging statistics and facts of Greater London as it exists to-day, and so providing in a manner easily followed and understood all the information interesting and useful to any person concerned with the control, development, or understanding of all matters pertaining to Greater London. It is a fact that a vast amount of valuable information accumulated by experts lies buried away in blue-books and archives quite out of reach of the ordinary citizen. The results of labour quietly and conscientiously devoted to research and codification ought not to be left to crumble and decay in obscurity, particularly as human energy is awakening to the importance of future development of town and country, upon which subject these records have such an important bearing.

"The magnitude and importance of the work of the Civic Survey is so obvious that it has by its very usefulness attracted many architects of established reputation. Public bodies and the public generally may some day be grateful for the war which has remotely led to the gathering together for this work of men specially trained, whom in times of peace it would have been impossible to commandeer for such labour.

"The work to be done in collecting and arranging includes correcting and bringing up to date all that has so far been done; and it is hoped to add an additional charm to the work, when completed, by giving it an æsthetic quality worthy of the profession of architecture. Since the work started much information has been collected by visiting heads of departments and local Councils, and by enlisting the sympathy of officials, which has always been freely bestowed, it being quickly recognised that the Civic Survey scheme does not trench on the preserves of any existing society, or disturb any vested interests, but seeks only to deal with things as they are, not as they were or will be. The fact that many of the workers are personally acquainted with officials and experts enables much information to be collected without friction and with scarcely any loss of time and energy on formality and routine. The immense variety of the work makes it easy for the directors to discriminate between the workers, and to see that each man is given the kind of work to which he is best inclined and fitted.

"The ready help and courtesy afforded by the officials of the various bodies associated in the work has stimulated happy co-operation and good feeling among all those engaged in it. All who take the pains to understand the scheme must recognise that, apart from its value as a basis for town planning, it is a labour of far-reaching utility."

Throughout the war we have kept in touch with the Professional Classes War Relief Committee, and this committee has helped architects' families by receiving their wives into the maternity home and assisting in the education of their children. It has also organised summer holidays for children and has helped in many other ways. In connection with this committee we have undertaken to help in a Christmas Sale at the Albert Hall, and a special committee has been formed for this purpose. We shall be glad to receive the names of ladies who are willing to make articles for this sale.

The Selection Committee ie now engaged in preparing a voluntary register of architects suitable for military, civil, or munitions work. It has been felt that the Government has not been able to make sufficient use of architects, as the information at its disposal was not sufficiently complete. It will be remembered that early in the war we made, through the Architects' War Committee, a general offer of service from the whole body of architects. When the war broke out an enormous amount of work suddenly fell on all Government Departments, and more especially on the War Office. Probably on this account our general offer of service did not receive as much attention as we hoped might have been the case, although we have been able to supply several men for responsible positions, but as this offer had been made by me as Chairman of the Architects' War Committee and President of the Royal Institute of British Architects, I thought it well to call at the War Office personally in May last and renew it in greater detail. The suggestions I then made were most courteously received, and I understand have since been circulated to all the commands in the British Isles.

Mr. Stanley Peach, who, with Mr. Munby, has been most indefatigable and devoted an enormous amount of time to this branch of our activities, finds that even now the details at the disposal of the Government are not sufficient, and that the only way in which we can be of real service is to have names and qualifications ready beforehand, so that the men required may be provided at once. I regret very much that some controversy should have arisen out of our offer of service. Our sole object was, and is, to assist the Government by every means in our power, and anything in the way of controversy is a hindrance and a waste of energy.

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The Professional Employment Committee, in addition to the Civic Survey already alluded to, has been able to find useful work of a very varied nature for a great many men, but there are, of course, certain cases where no suitable employment can be found, and in these cases the Architects' Benevolent Society and the Artists' General Benevolent Institution have given direct assistance. This committee has held its meetings on the premises of the Society of Architects, which has given the services of its staff for the purpose. We have also started a Loan Fund to assist men in stable positions to tide over a difficult period.

The Institute has not been unmindful of the probable burden of income tax on those architects whose professional income has seriously diminished and promises to vanish altogether. A letter was addressed to the Inland Revenue Office in August calling attention to the fact that it would be impossible for many architects to pay income tax on a three years' basis, and suggesting that it may be possible to make the returns during the war on the actual year. The Institute also joined with the Institution of Civil Engineers and other bodies in sending a communication of a similar kind to the Chancellor of the Exchequer. A certain measure of relief has been promised on professional incomes, but it hardly meets the case of architects whose incomes are practically non-existent. Architects are in the peculiar position of not only having to face an ordinary diminution of work consequent on the war, but of having their means of livelihood still further reduced by the action of the Government stopping public building, and of the Government Committee in recommending the stoppage of all private building. In these circumstances we have a peculiar claim to consideration, and a further letter has been written to the Chancellor of the Exchequer.

I have only been able to give a very slight outline of all that is being done under the War Committee, but I hope I have said enough to indicate that if some of our ordinary activities are necessarily curtailed we have replaced them by others of more immediate importance during the war. Our committees are large ones on paper—but the actual work is being performed by a few, and it is possible that on that account only a few know how much is being done. Mr. MacAlister and the Institute staff are coping heroically with all the extra labour thrown upon them. The work of the Architects' Benevolent Society has been enormously increased, and Mr. Dircks, as Secretary, cheerfully shoulders a new burden every day. The Architectural Association has continued its recruiting work, and has sent large numbers of recruits to various branches of the services. I understand that something like 850 men have been added to the forces through its agency, and in many cases, where a special type of man was required, the commanding officers have expressed great satisfaction with the men sent to them through the Architectural Association War Service Bureau. The Association is keeping in touch with all these men, and is now asking for contributions for comforts for them. I hope everyone who can will spare something for this fund.

Altogether we have serving in his Majesty's Forces over 1,800 architects, including assistants, pupils and students, and teachers of architectural schools. Last November there were about 1,000. At that time nearly all these young men were in training at home. Now most of them are abroad, many have been wounded, and some have given up their lives for their country.

The end appears to be far off, and there are very few of us who do not live in daily and hourly anxiety as to the fate of those who are very dear to us. It is a weary business waiting, but it is the lot of those who are too old to fight. Many of us, too, have the added anxiety of vanishing incomes and increased cost of living and taxation; but as the character of the younger generation is now being formed on the battlefield, the character of the older generation is also being put to the test. The situation is serious; more soldiers are wanted, and it is difficult to look with a lenient eye on the many young men who walk our streets, apparently indifferent to the stern claims of duty. But while we are tempted to judge them harshly, let us remember that courage of a very special kind is needed now. The great wave of enthusiasm which carried along those who nobly went at the first call without calculation or other thought than that they were wanted, has spent itself. The stern meaning of war is understood, and the reality of the tremendous sacrifice that these first gallant recruits have made is clearly grasped. The business community has settled down to war conditions, staffs have been adjusted to these conditions, and employers do not perhaps encourage their men as they did at the beginning of the war to go out and do battle for their country.

Then, too, what are the surroundings of these young men? Is there a spirit of sacrifice abroad? Do they read a stern resolve in the faces and lives of the community? Do they not on the contrary see the war exploited and vulgarised for advertisement? Are not theatres and music-halls filled to overflowing by an apparently thoughtless crowd? Is not life to all appearance just as it was? Are our young men led and inspired by noble speeches to throw aside comfortable ease and expose themselves to all the horrors of war? As far as my observation goes they are not. We have instead the exasperating and dead appeal of the pictorial poster. At recruiting meetings young men are often cajoled and flattered or insulted and threatened by turns. I am certain that the large majority of them are sound at heart and, if the right note is struck, will do their duty as those who have already gone have done theirs. We who are too old for active military service must let them know that we realise all that we are asking of them. It is easy for us to say, "Would I were a young man." I hope we should all have gone; but none of us can realise the struggle of the man who hesitated to go at first, and is now asked for what has been well described as "three-o'clock-in-the-morning courage." But the decision can no longer be put off. The time for choice is over. No one fit for his country's service has a right to live at ease and carry on his work protected by those who have not weighed the pros and cons but have seen only one path and have trodden it fearlessly. Many of these men have given up promising careers and good positions, and it is unthinkable that, now the need is so great, others should hesitate to make the same sacrifice.

It is hard, too, for some of us older men to sit still and not criticise this or that apparent act of omission or commission of the Government. Nearly everyone has somewhere in his secret recesses the conviction that he could do the work better himself, but let him remember that the slashing critic is often a very mediocre performer.

We are passing through the accustomed phases. First, the light-hearted disdain of the enemy, the unreasoning certainty that everything is all right and that victory is ours merely by wishing for it. Then comes the second period, the period in which we are now, when there is a sort of uneasy feeling that we cannot go on in a nice comfortable optimistic everything-as-usual kind of way, that something has to be done, we don't quite know what, we are depressed without quite knowing why, and we begin to look about for scapegoats.

But when we are tempted to be impatient, let us see what actually has been done in fifteen months. We have performed the miracle of raising, training, and equipping an immense army. We have entirely reorganised and immensely increased our munition factories. Germany has lost practically all her Colonies, and all her ships have been driven from the seas. These many months of mutual anxiety and fierce fighting have consolidated the British Empire as nothing else could have done, have revealed to us the splendid character of our manhood, and given the lie to the croakers who declared we were a decadent race. They have, too, tightened the bonds of friendship with our Allies—particularly with our great neighbour France, a country especially dear to architects, and out of the great welter of war is emerging a clearer view of the immense issues at stake.

I think, then, that it is our part to have a fixed and serene intention to be victorious, to remember the tremendous responsibilities of our Government, and to lighten those responsibilities by doing everything that we can to assist and support it, and so help to form a united public opinion resolute to do everything possible, and impossible, to bring the war to a victorious end.

I feel, ladies and gentlemen, that I owe you an apology for dwelling so much on the war and not at all on architecture. I will confess that I had intended merely to give a short account of what we were doing for our brother architects, but my pen has run away with me. After all, what is there really of importance except this great war? On the result everything depends, and everyone can contribute something towards this result, not by morbid brooding, not by gloomy forebodings, but by realising the tremendous seriousness, understanding the sacrifices which must be made by us all, and by believing that victory is certain if we as a nation bend our whole energies to the

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task, and shrink from nothing which will give us that victory without which life would not be worth living.

A vote of thanks to the President was moved by Mr. Reginald Blomfield and Mr. J. A. Gotch. The vote was carried by acclamation, and was briefly acknowledged by Mr. Newton.

The President next unveiled and formally presented to the Institute, on behalf of the subscribers, the portrait of Mr. Reginald Blomfield, R.A.

At the conclusion of the meeting Mr. Ernest Newton announced that the Council had decided, owing to the exigencies of the lighting regulations, to cancel the programme of papers and to suspend the evening meetings which had been arranged for this session. The usual business meetings will be held, but will take place at three o'clock in the afternoon. It has also been decided to close the Library at six o'clock in the evening instead of eight.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

ALTHOUGH twenty-four members of the Society are now serving the Colours, there was a capital attendance at the opening meeting of the Winter Session held on Tuesday, October 26.

The President, Mr. Harry Gill, M.S.A., entertained the members to tea, and by the courtesy of the City Library Committee and the competitors the premiated drawings of the branch libraries were on view.

The President announced that death had claimed two former members of the Society, Mr. R. C. Sutton, the father of their past President, and Mr. Ralph Hemingway, a former Hon. Secretary. The latter had been killed in action at the Front. Votes of sympathy to their relatives were passed.

Mr. J. E. Webb, Building Surveyor to the Nottingham City Council, was elected a member.

It was announced that although the Council of the Society had protested against the alterations at Southwell Minster the work had gone on and was now nearing completion.

The President then delivered the following paper, entitled "Logic in Architecture."

"Our world has passed away
In wantonness o'erthrown."

But thanks to the courage and steadfastness of the Allied armies, and thanks to the devotion and self-sacrifice of the younger members of our Society, another, and, let us hope, a more beautiful world will spring "phœnix-like" from the ashes.

Almost without exception the practice of architecture has been brought to a standstill by the war. It behoves us therefore to put this temporary surcease to advantage, and we can do this by seeking out the weak points in our works in order to strengthen them; to do this effectively we must indulge in introspection such as we never could or should be disposed to do in the throng of normal times. This uncongenial task has been made all the easier, seeing that party politics and religious controversies have been laid aside for the moment, and we can meet on common ground and speak our minds as comrades and Englishmen "sans peur et sans reproche."

Under these peculiar circumstances "Logic in Architecture" appealed to me as a topic worthy of consideration, using the word logic to mean the "science of reasoning," as architecture is the "science of building."

I do not wish to infer that "logic" is the only or even the chief thing an architect should cultivate. When I think of the terrible pass to which the German nation has been brought by their dependence upon logic alone I feel that it is necessary to remind ourselves—paradoxical as it may seem—that we must also have ideals which are often illogical, and we must also foster the spiritual side of our nature, which is often impracticable, if we would make a real living success of our work.

But these are great themes of which I can only make passing mention in the limited time at my disposal, and therefore I must confine my remarks chiefly to logic.

There can be little doubt that logic has been neglected of late, and as a consequence we have been prone to follow the dictates of fashion, a dangerous guide where architecture is concerned, for fashion has led to the adoption of methods of construction which are unsound, and to ornamentation which is meaningless.

If in what I am about to say I criticise adversely the details of recent work, my own as much as any other, you will understand that I speak of the work for the work's sake only, and quite without any personal motives.

To many who commenced their training some fifty years ago, the Gothic revival came as a misfortune; for while I would yield to no one in my admiration for mediæval architecture, I feel that the Gothic revival was a mistake, because it was the revival of the outward form without a true grasp of the inward spirit.

You have only to look round to see what this has done for us in modern ecclesiastical buildings, and more especially as exhibited in what for the sake of classification only I may call the dissenting places of worship in urban and rural districts. Of how many of these conventicles ought it to be said, "Our church at the front is as fine as an abbey, but seen from the rear 'tis remarkably shabby." But the gods see everywhere.

Let me again repeat that I am speaking of the material fabric only, and that not even one word of my criticism applies to individuals or sects, but it is necessary to particularise in order to make the anomalies clear.

The Presbyterians, who of all people should be the last to pay respect to images of the saints, have placed over the chief entrance of their place of worship in this district a "little Gothic niche of nicest workmanship," which looks as though it once had held the sculptured image of some patron saint or the Blessed Virgin, looking down on all who entered those religious doors. In years to come, when age has added its mellowing influence, will future generations be led to believe that the iconoclastic spirit of our time had deprived that niche of its occupant? For only on the assumption that it was intended to shelter a sculptured image can such a housing be justified.

If the Presbyterians could be outdone in this direction it would surely be by the Baptists; but the Baptists have put two niches on the front of their new church which again are meaningless unless intended for statuary.

In old-time representations of the saints it was not unusual to depict them in the greatest act of their lives—St. Wilfrid giving freedom to a slave, &c. When this terrible war is happily over I suggest that it might be appropriate to make these niches commemorative. On the one side we could have St. Lloyd George distributing rare and refreshing fruit to the English, and on the other the same saint devising iron rations for the Germ-huns.

The buildings in which men worship nowadays are, indeed, a strange study, for do we not find that where faith is supported by appeal to reason the architectural setting is frequently illogical and quite out of harmony with the schemes; but where the appeal is to authority and individual reasoning is discouraged the architectural setting is logical and designed to give an uplifting in influence? So that speaking, of course, on broad and general lines we might say that the more logical the creed the less logical the architecture when it ought to be *vice versa*.

I would say to the young architectural student, study ancient Gothic architecture by all means, but do not attempt to copy it. Remember that the methods of construction and the material at our disposal are not so restricted as they were in the days of old when the craftsmen had perforce to choose either oak or stone.

Let archæology be your handmaid if you will, but do not make of it a fetish.

When we turn from the modern Gothic to modern Classical architecture we shall find the details are more illogical still.

Whatever semblance of reason there may be in putting a key-block in a flat brick arch it is surely a violation of principle to put a key-stone in the centre of a stone head or lintol. And yet this anomaly is a feature of modern design. If you study the brick buildings of the seventeenth and eighteenth centuries you will find numerous instances where key-blocks have fallen out owing to a slight settlement of the jambs or to natural decay of material due to lapse of time.

In recent buildings not only have key-blocks been introduced in flat lintols, but they have been made to project so unduly beyond the face of the wall as to become actually dangerous.

In my opinion buildings so designed will in years to come be almost as great a menace to human life as Zeppelin bombs are to-day.

A key-stone in an arch is a structural necessity, but to use a structural necessity purely as an ornament is quite a different thing to the ornamentation of a structural feature,

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and there surely can be no justification for a treatment which offends against all laws and rules of common sense.

Look again for a moment at one of the most important details in Classical architecture—the column. In the hands of the Greeks the column was, indeed, a thing of grace and beauty. I wonder what would happen to the builders who lived B.C. if they could see what we degenerates euphemistically call a "rusticated" column.

The grace and dignity of a Grecian column is due to its perfect proportion and the subtlety of its entasis, and yet how often do we see these attributes destroyed by the senseless system which is sometimes adopted in modern work of building up a column for part of its height, yea and sometimes the full height, with alternate drums and cubes, until the graceful lines of taper and the effect of entasis is entirely obscured.

I am aware that the Queen Anne and Georgian architects who used this abomination claimed that "chiaroscuro" was the effect they aimed at; but if light and shade can be obtained only at the expense of the column, I for one would prefer shape to shadow, and I think the day is not far distant when our successors will wish to dress down these abortive columns to their true lines.

There is an example not 100 miles from here of a modern building which has what are supposed to be Doric pilasters at the angles. These pilasters are "rusticated" throughout their full height, so that the taper can be only fitfully seen in the wide sunk joints between each block, while the mouldings at cap and base have to be searched for before they are seen at all.

Although I am an architect with many years' experience over my head, I felt it was quite a feather in my cap when I found out, "all by myself" as it were, that these were really intended for pilasters. But what about our patrons? Will they ever know it, and will such work cause the public bosom to swell with pride at the prowess of native genius?

Then, again, what liberties we have taken with the pediment. A broken pediment is claimed by some to be a decorative treatment. For internal use, and especially when it is broken to admit the display of a medallion or bust, it may be done with a semblance of reason,but even then it is a long remove from the sculptured tympanum of the Greek; but to build a broken pediment with masonry can never be commended.

It surely is topsy turvey logic to put a key-stone where it is not needed either for strength or appearance and to omit the key-stone from a pediment where it is needed both for strength and appearance; while to build a pyramid on its apex would not be more illogical than the attempt to give apparent support to a wide arch by dividing it into compartments with stone or brick mullions.

Why do we perpetrate these things? Is it not because without stopping to think for ourselves we follow fashion in architecture and become imitators of one another instead of designers?

Our Society is fortunate in having a folio copy of "Stuart and Revett's Antiquities of Athens," and the young architect could wish for no better studies, but they should only be used as the ground work for a logical adaptation to modern needs.

Another very weak point in modern architecture, in my opinion, is the shorn and unfinished appearance of the cornice. A parapet wall perforated with what one might call the "Union Jack" pattern, which is very patriotic, but not pretty and devoid of any sheltering coping, is very much in fashion just now. To me it gives the impression of the man who began to build without first having counted the cost, and who consequently had to leave off abruptly before the full height was reached.

I was taught that the top of a wall should always be protected with a projecting coping of some kind, and in such an uncertain climate as ours a projection is a logical necessity, quite apart from the question of appearance.

There is some difference of opinion as to how far the exterior of a building should reveal the internal arrangement of its component parts. In any case, I think it is illogical to design an elevation without any regard to the plan.

An otherwise satisfactory building not far from here has its chief facade disfigured by the string of a staircase which is seen to run across the hall window. We all know how difficult it is to arrange the various levels of a staircase so as to work harmoniously with a symmetrical design; but to plan a staircase without even making an attempt to incorporate it with the design is a divorce which never can be justified.

To turn to domestic work for one illustration. The other day I had occasion to look over a detached house which, together with the land, would be worth approximately £1,000. By standing immediately in front of it the upper storey appeared to be in what is known as the half-timber style. But the timbering! I asked myself, Is it structural? No; it could not be, for the timbers appeared only on the front faces and not on the returns. It was therefore "applied" art, and so I asked myself, Is it decorative? I think that was the idea the builder had in his mind when he did it, but I could not find one pleasing line in it. The work was altogether illogical and a sheer waste of money.

This is not a condemnation of any or every attempt to reproduce the timber style of building.

I know there are some who teach that timber buildings should be restricted to sites where timber abounds, and so on, and there was a time when such a practice was necessary and did prevail. Stone buildings in a stone district—brick buildings in a clay district—and timber framing where neither stone nor brick was plentiful has produced some delightful results. But in these days when every facility is given for carriage of material from one district to another there is not the need to adhere to any traditional manner of building. In large towns, and industrial centres especially, any endeavour to relieve monotony is commendable.

But we must educate the public taste. We must convince men that a house need not be burdened with trimmings to make it attractive, but that simple proportions and honest construction will always produce the most pleasing results.

One other matter I would like to mention here, for if it is not quite in line with my subject it is closely allied to it. It has often been urged that architecture would gain immensely if the municipalities were to enforce some regulations with regard to design, and that breadth and dignity would be secured for town buildings thereby. Who can look at our town streets—the Long Row, for instance—without feelings of regret? If, instead of innumerable ups and downs the cornice and frieze of the colonnade could be made uniform in height, what a gain it would be.

As town-planning ideas advance it is possible that this will one day be realised, but in the meantime architects could do something toward the attainment of this end by fostering a spirit of brotherhood within their own ranks.

There are cases, for instance, where respect should be paid to the design of an adjoining building when this could be done without loss to one's own work.

There should be no rivalry among us save such as is aroused by a desire to do good and lasting work.

In the days which lie before us the great task will be to restore confidence and freedom, truth and righteousness to a stricken world.

Let us work together in a true spirit of helpfulness such as distinguished guilds and crafts in the Middle Ages, and I am sure it will be pleasanter for us who work, as it will be more beneficial to our clients and the public at large.

In conclusion, let me again acknowledge that it is easier to criticise than to construct, and the man who never made a mistake is yet to be born. But "one man's fault is another man's lesson." If I have been able to awaken thought by drawing attention to this subject, I feel sure that the intelligence of my audience will be sufficient to apply it in the right direction.

Let our endeavours be to "Design with beauty; build with truth."

An interesting and instructive discussion followed, in which most of those present took part, and a hearty vote of thanks was accorded to the President for his hospitality and thoughtful paper.

THE Leeds Corporation have received the sanction of the Local Government Board to prepare a town planning scheme for the suburb of Gledhow over an area of 852 acres. Any persons interested or affected (including the representatives of architectural or archæological societies and persons interested in the amenity of the proposed scheme) desiring to be heard in reference to it should send in a notice to the town clerk not later than November 11.

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GLASS.—II.

Written and Illustrated by James Scott.

SOME MICROSCOPICAL FEATURES.

PAINTS for glass are prepared by mixing glass powder and finely ground pigments composed of metallic oxides with sugar water, or with air-thickened turps. Glass covered with pictures or decoration produced by these means is laid face downward on an iron plate, over which is evenly spread some plaster of Paris or ganister, and is then fired in a suitable oven, the temperature being slowly raised and then gradually lowered to cooling point. The result is that the metallic portion of the compound is permanently fused on to the glass, of which it actually becomes a part, while the organic matters—the sugar, &c.—are volatilised and the remainder are unaffected.

Everyone who handles large panes or long strips of glass is aware that the substance is very flexible. If care is taken

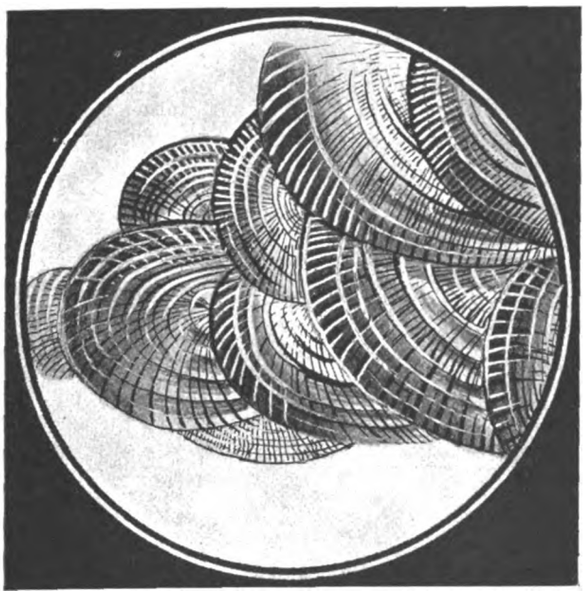


FIG. 4.—The circle is equal to a pinhole, greatly magnified, and shows a minute conchoidal fracture in glass, typical of them all.

meantime it can be bent to a surprising extent without snapping. It must, as a rule, yield in this way to winds, unequal air pressure in rooms, and so forth. You can test this trait by pressing a thumb gently yet firmly in the middle of a large pane. But do not act indiscriminately or carelessly during such an experiment, as I do not wish to be blamed for any accidents in this connection.

Even glass which looks white and clear from the surface will exhibit a dense opaque greenness when viewed down from the edges. It hardly comes within my province to explain the reason for this peculiar fact.

Glass always fractures in what may be known as a conchoidal manner. This name means shell-like, and a reference to fig. 4 will prove how apt it is. Some fractures are large enough to be seen by the naked eye, but owing to the highly refractive properties of the substance it is somewhat difficult to detect the details of the formation, and strangely enough these are better observable in small examples. Those of bigger dimensions simply reveal, as a rule, brilliant surfaces on the broken portions, and unless these are very closely examined the patterns are not visible.

The conchoidal shapes are always noticeable along the cut edges of glass and those of cracks. Every fracture is somewhat different from the others, yet they all possess a characteristic appearance, the substance being scooped out or else embossed in a peculiar way, and having lines so arranged over them as to suggest a number of shells. Naturally there are corresponding parts on the piece which has been detached from the one inspected, there being in that case elevations and depressions capable of fitting respectively into and over the others. It will be seen that by extending the curved lines as far as possible they would compose a number of circles or ellipses one over the other.

Glass is commonly affected by the presence of minute elongated objects of a boat-shape, as shown in fig. 4. These are actual cavities, and are due to the retention of air bubbles in the molten mass. To the naked eye they appear as brilliant specks. Some qualities of glass are crowded with them, and in such cases they naturally indicate inferiority. As I have hinted, these things are hollow. Sometimes they appear right inside the pane; at others they are so near one of the surfaces as to constitute comparatively deep depressions, into which one can insert a fine needle point. When thus exposed they often get full of tiny particles of dirt.

It will be understood that in areas where they exist the thickness of the glass is unequal. The strength of a pane is reduced in this manner; and instead of it properly yielding to and fro in powerful winds, fractures are caused which start from these places. There is no doubt that many mysterious occurrences in connection with automatic breakages are set up by such cavities. A window pane suddenly cracks across as though a stone had been cast at it, yet no one is within sight. I believe that some change of temperature or shock to the window frame has in an event of this kind made the air bubble burst, with the result that it served as a centre from which fractures instantly radiated, the action itself giving rise to the noise mistakenly regarded as indicating the beginning of the damage.

Although the subject of dirty or grimy glass is not especially appropriate at the present moment, its consideration will enable us to realise the manner in which various other portions of buildings are affected and injured. The illustration fig. 5 was prepared from an actual example, and is not in any way fanciful. The arrangement is very easily explained.

Suspended moisture exists in the form of minute spherical globules. The visible vapour that issues from a kettle of boiling water, for instance, consists of myriads of very tiny distinct and separate droplets. If these are led into a cool glass jar, or any other suitable receptacle, they unite together to constitute larger ones, which condense and fall, thereby producing water. On the other hand, they generally evaporate entirely away, owing to separate diminution, which takes place rapidly, the vapour then becoming invisible.

It is possible, in suitable circumstances, to see these minute magnified globules hanging in the air, and to note the quick, gradual reduction of each until nothing can be detected by the eye.

Now, when such globules settle on window panes they get flattened into discs, their diameters increasing in consequence. In such a case their circumferences come into contact with each other, and these parts are squeezed from curved to angular shapes. You may observe similar angu-

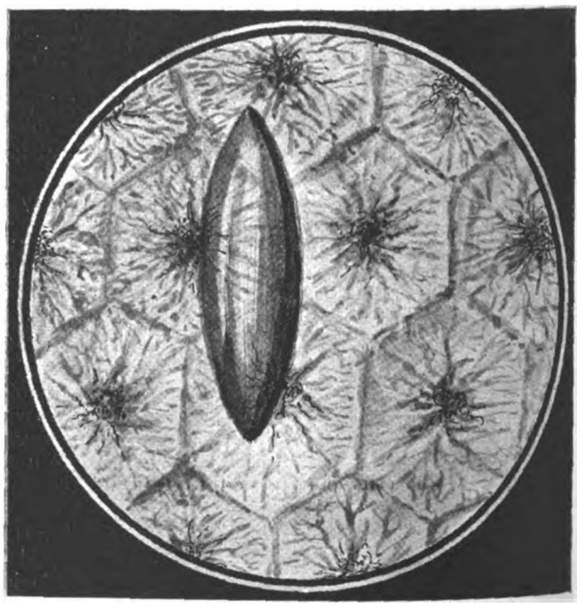


FIG. 5.—The circle is equal to a pinhole, greatly magnified, and shows a grimy area on glass, as well as an air bubble within it.

larities arise when a mass of soap bubbles are engendered in a basin of water. Mutual pressure forces them from rotund to faceted forms.

In travelling through the air the globules pick up particles of dust, fungus spores, and kindred matters; and of course these are carried on to the glass. When the modified globules evaporate the débris gradually subsides, some of it radiating from the centre, while the remainder marks

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the junctions of the spaces. It often happens that the spores of micro-fungi have had time to germinate, and the resultant threads will then be seen extending from the various centres.

It does not follow that every grimy window will be precisely the same as that described. Draughts and other disturbances often interfere with regular settlement. I have, however, dealt with the rule of procedure, as can be proved by anyone who will make personal investigations. Sometimes a portion of the glass will appear like that shown, whereas the remainder will be nondescript. The

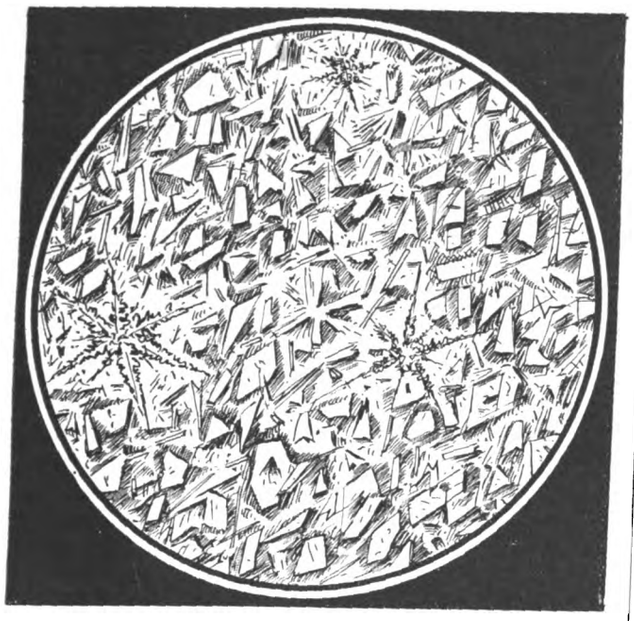


FIG. 6.—The circle is equal to a pinhole, greatly magnified, and shows the appearance on frosted decorative glass produced by the fumes of hydrofluoric acid.

beautiful frosted designs which cover window panes in cold weather originate from minute globules, which immediately upon deposition are frozen together. Changing currents of air affect the groupings.

Similar globules fall on to woodwork, metal, concrete, ceilings, bricks, masonry, and all other parts of buildings. This fact will explain why corrosions, disfigurements, and other troubles are so common in certain quarters. Condensed moisture, concentrated into definite areas, aided by micro-fungi conveyed by such means, starts all kinds of mischief.

A large number of the beautiful frosted patterns produced on glass used for decorative purposes are prepared by exposing it to the fumes of hydrofluoric acid, certain parts being meantime protected. This fluid has to be kept in flasks of papier-mâché or lead, for it consumes glass ones. It is extremely powerful, and in fig. 6 is shown the microscopical appearance of a piece of glass treated in this manner. Crystalline patterns are in all cases bitten into the surface, and the facets and cross lines by reflecting the light give the pretty effect. If the exposure is short very distinct minute designs are obtained; if it is prolonged, bold interwoven ones result.

Iridescent colours of everlasting character can be given to glass by putting it for a long time in closed places containing faint fumes of this acid.

Frosting on a large surface is also produced by blowing a fine stream of sand on to glass, minutely chipping it as a result.

AT the annual meeting of the Court of Governors of the National Museum of Wales at Cardiff on Saturday it was stated that the position of the building fund caused anxiety. £54,000 was due to contractors, &c., to meet which £21,150 was available, leaving £32,850 to be raised. If half could be obtained from local sources the Treasury would provide the remainder. There was no power to stop or suspend building under the contract, and there was the possibility of a loss of £10,000 to £20,000, and the difficulty of a new contract to face. It was announced that two sisters would contribute £5,000 if the remainder of the £16,500 required locally was raised.

HOUSE BUILDING: PAST AND PRESENT.*

By M. H. BAILLIE SCOTT.

THE subject for this series of lectures is a very wide one. I hardly realised how wide it was till I began to write about it, and I soon found that the main problem before me was not what I could say about it, but what I should be obliged to omit. After much consideration, I have deliberately chosen to deal mainly with what I may call, for want of a better word, the artistic aspect of building. In so doing I do not wish you to suppose for a moment that practical efficiency is not of fundamental importance. It is, in truth, the only sound foundation for worthy artistic ideals. But I think the modern tendency is to confine our attention too exclusively to the material aspects of the problems involved in building, and to consider the art of the matter as an entirely separate consideration, and not as the leaven which should humanise and spiritualise the whole of the enterprise. Because we rightly believe that sanitation is important, there is no reason why we should always be groping in the drains, forgetting the heavens above us. It is well that every material comfort and convenience should find its place in the modern house, but, since man cannot live by bread alone, the house should minister to something more than material needs, and should indicate some of those aspirations of the spirit which we find expressed in the old houses. The main object I have in view, then, is to indicate some of the obstacles to the realisation of this ideal, and to consider how they may be removed.

Before considering house building in the past or the present, it seems desirable to get some clear conception in our minds as to what building really means to us, and in what the art of it consists.

I believe I am right in assuming that the general modern impression about building is that in its simpler forms it is a rather dull sort of trade, and that only when it becomes elaborate and complicated does it become worthy of regard as an art. This elaborate building is popularly recognised as architecture. It is built from the designs of architects, and may be readily distinguished from ordinary building because it has certain well-recognised architectural features. It has columns copied or adapted from Greek or Roman temples according to the fashion of the day, or in buildings set apart for religious purposes it may have Gothic pinnacles and cuspings. Now all these technical matters are little understood by the people, and even the highly educated are often timid in their judgments in matters connected with building. The architects are the high priests of the mysteries of architecture, and whatever they choose to do is accepted with equal indifference and apathy by the public. Of recent years, in public buildings, the architecture based on the ponderous gloom of Roman buildings has been all the mode, and this manner is carried on concurrently with various other fashions in smaller buildings. And, meanwhile, ordinary plain building is neither studied nor understood as an art. It has never apparently occurred to anyone that ordinary plain building is an art. The attitude towards building and architecture, which has led to this state of affairs in the building world, is supported by many high authorities. On referring to "The Seven Lamps of Architecture," by John Ruskin, I find it assumed, as a matter of course, that building itself is unworthy of regard as art, and it only becomes architecture when it includes useless features. He says architecture concerns itself only with those characters of an edifice which are above and beyond its common use.

Now I wish at the outset to dispute entirely this modern conception of building and architecture, and I refuse to reverence any building merely because it possesses unnecessary features and ornaments. A building is not to be transformed into a piece of architecture by mere trimmings, any more than a plain man is to be made into a gentleman by adopting a conventional garb. Let us clear our minds from all the recognised cant about buildings, and look at the realities of the situation.

The principles which underlie all arts are the same. In the art of building, considered in its broadest aspect, we shall find man engaged, not, as in literature, in arranging words on a page, but in arranging brick and stone and wood on the earth. The purpose of his work is fundamentally practical, and it becomes architecture, as writing becomes literature, not by elaboration or by ornament, or

* Abstract of the first of three lectures delivered before the Royal Society of Arts, and printed in extenso, with illustrations, in the Society's "Journal."

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by any unnecessary trimmings, but by the skill and insight disclosed in the use of the means at his disposal. In building, as in writing, the real qualities of the work are elemental and not accessory. They cannot be extricated from fundamental construction. It is impossible to make any distinct dividing line between building and architecture. The best figure which I can put forward to illustrate my conception of building is to think of it as a plant we are growing which, if our gardening is good, may break into flower. The flower is the reward of the right kind of root culture. It may be quite unexpected and undreamt of. And this living bloom is quite a different thing from the imitation flowers deliberately copied from the classic gardens. It is evolved naturally and inevitably from the very life of the plant, and cannot be stuck on from outside. In the case of building we have no critics who understand it as literature is understood, and while the latest novel or musical comedy is the subject of expert criticism in the Press, buildings are seldom considered as works of art at all. A great opportunity is therefore lost of educating the public taste in matters connected with building by the lack of recognition of the building art in the popular Press. A new church is vaguely referred to as in the Early English style of architecture, and the writer is obviously unaware that Early English architecture was the expression of the soul of Early England, and that the reproduction of the same forms in modern cast-iron workmanship, according to contract, is but an empty husk compared with the genuine article it imitates. For there is all the difference in the world between an inspired creation and the imitation of an inspired creation.

In trying to show that the merit of a building does not necessarily lie in the architectural features, I do not wish to suggest that all elaborate building is to be condemned, but merely that beauty in building does not necessarily consist in elaboration, and that generally a certain simplicity will be the mark of the best work. Elaboration and ornament seem to me only justifiable as the spontaneous expression of the joy of the worker—a breaking forth into song. As such it stands in the building as a kind of petrified joy, and persists as a symbol of something great indeed. In building, as I understand it, while we are bound to do honest and sound work, we are in no way bound to use elaborate ornament or architectural features, and there is no mysterious alchemy which transmutes plain building into architecture by such additions.

The fashion of the day for public buildings may be expressed in the following formula. Work out your structure in a skeleton of steel and concrete, and when this is done conceal these essential factors of the constructional scheme with a screen composed of architectural features copied out of books. The curious compound resulting from this fundamentally unsound and dishonest process is usually described as Classic architecture. But those of us who have our own conception of Classic architecture may perhaps be pardoned for not accepting it as such. Classic architecture in the modern world—and the Grand Manner of building generally—stand for pride. There is no humility in it, and the antic man postures and plumes himself at large. And the cure for all this is the proper cultivation of a sense of humour. It is much to the credit of modern life that these bombastic buildings do not interest anyone, and the only reason for their production is due to the fact that all public buildings are produced under a competitive system, in which the professors of the Grand Manner are at present the sole arbiters.

In the building of houses there is some small hope of better things, because those who still understand something of the possibilities of building as an art may find in the house a means of expressing their ideals, untrammelled by official standards. But the trend of modern thought is so largely infected by utilitarian and mechanical ideas that the general atmosphere is too often fatal to the growth of any real building art. The house is considered as merely a combination of conveniences, hot-water taps, labour-saving appliances, and so on. I have no wish to undervalue these things. They are undoubtedly of great importance. But I can never accept a hot-water tap in exchange for all those noble qualities which have been and may yet be expressed in building, and I would rather think of the house as a temple to the household gods than as a mechanical contrivance which would reduce all human activities to the single act of pressing a button. I think it was Professor Lethaby who said, "A house should be as efficient as a bicycle." That is quite true as far as it goes. But it is apt to mislead us if we suppose that the problems involved in building a house or in making a bicycle are of the same kind. The function of the bicycle is such that in making it all our doings are strictly governed by insistent conditions which admit little latitude for creative choice, and its ultimate form is the resultant of remorseless material forces. But in the building of a house no such conditions restrict us. We have to enclose and to roof over a piece of space, and subdivide this space for the purposes of habitation, and according to the usual modern formula we may allot spaces for drawing-room, dining-room, and so on. Now I do not think you can tell me of any natural law which insists on any definite size or shape for any of these apartments; and, supposing the house to be wind and weather proof, to be conveniently arranged and completely warmed and lighted, there is still a large margin for creative choice in its forms and details—in the proportion of its rooms, in the technique of its workmanship, and in the qualities of its materials. It is, then, impossible to escape from the conclusion that the creation of a house is essentially an artistic matter involving deliberate selections and rejections, not entirely subject to utilitarian restrictions; art, either good or bad, cannot be excluded from its conception and execution. And the most valuable kind of art in house building is that which is intimately associated with the proportion of its masses and the very bones of its anatomy, so that, when stripped of all its superficial adornments, its wallpapers, and its curtains, it still preserves unimpaired, if unadorned, its essential qualities.

The idea that house building is merely a matter of practical utility and not, like the painting of pictures, for instance, essentially an art, leads us naturally to suppose that the modern house is necessarily, as the outcome of a long experience, especially adapted to our needs, and in every way an advance on the older houses. If we wish to obtain the greatest efficiency in a locomotive, we should not in these days be inclined to use the earlier types of engines, and we rightly prefer a Rolls-Royce motor-car to Stephenson's "Rocket," for the whole development of such means of locomotion has been a continual advance in efficiency. So the modern bicycle is better than the old bone-shakers or velocipedes, as they used to be called in the days when cycling was a fearful and hazardous adventure. But there is this difference between the proper subjects for scientific study and those which are governed by artistic principles. In the former we may expect advance and improvement coincident with the material progress of civilisation, but in the latter it is often found the earlier work is better than the later, and so the old picture may often be better than the latest expression in painting, and the old house better than the modern villa. Give me an old house—let it be as early in date as the twelfth century if you like—and after adding a bath and cooking range, and a few hot-water pipes, which constitute almost the only contribution to the efficiency to the house that modern times have supplied, the old house shall make as good a dwelling for all practical purposes as any modern house, and in addition, as a work of art, it has a value difficult to measure or describe in words and qualities, which with all our enlightenment and knowledge we have forgotten how to produce.

In thinking of building, then, I want to try to dispel the idea that architecture is an elaborate and complicated kind of building which we in our modern enlightenment have evolved out of the darkness and ignorance of the past. I want to substitute for this conception of the building art the idea that whatever real greatness a building may possess is rooted in the essential facts of its structure. It lies in little homely everyday things and in work affectionately done.

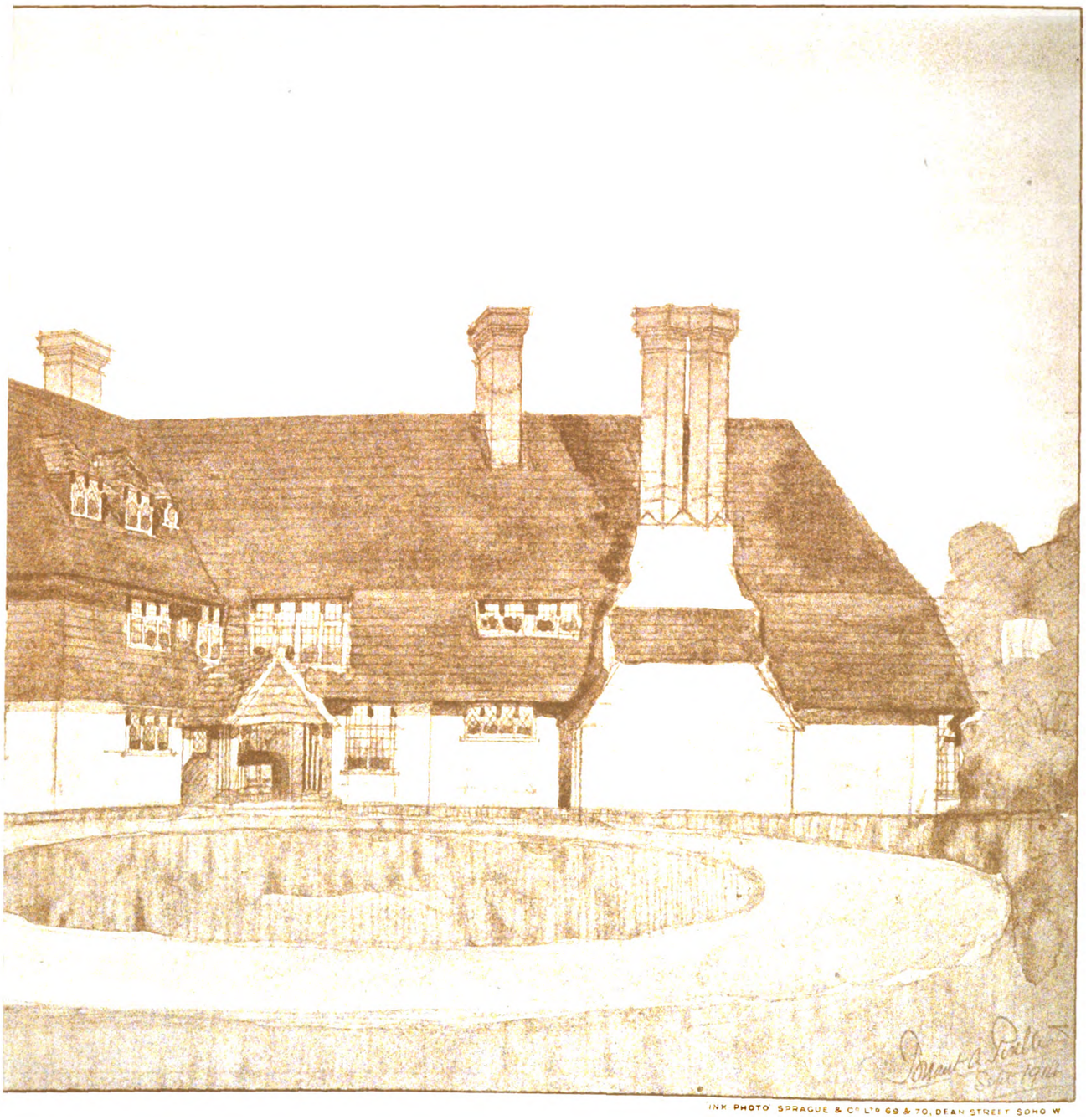
This old way of building we have lost, and, until we can regain it, it is idle to indulge in extravagant dreams about architecture, for all true architecture grows out of good building. It cannot exist without a universal habit of good building. And do not let us imagine that art is in any way degraded or obstructed by the fact that it has to deal with practical problems such as are involved in ordinary building. Pure art, as it has been called, which lives in a dream world apart from the actualities of our daily life, soon becomes emasculated and trivial, practised by a limited cult of superior persons. If we consider the works of Nature, we shall find no pure art there. The most beautiful creations all have their practical functions to perform. There is no part of the trees or flowers which is not designed for a purpose to which it is deli-

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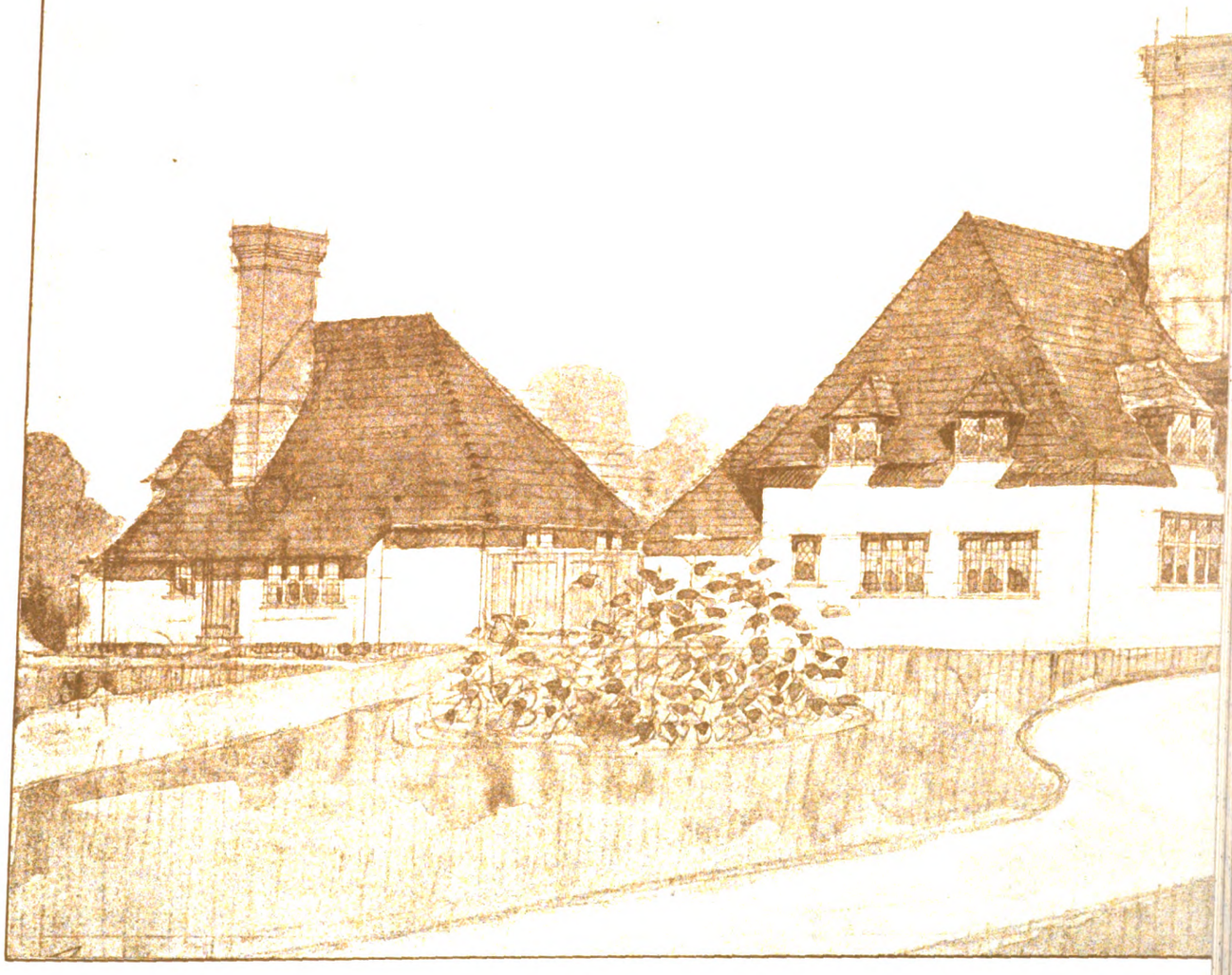


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HOUSE AT SUNNINGDALE.



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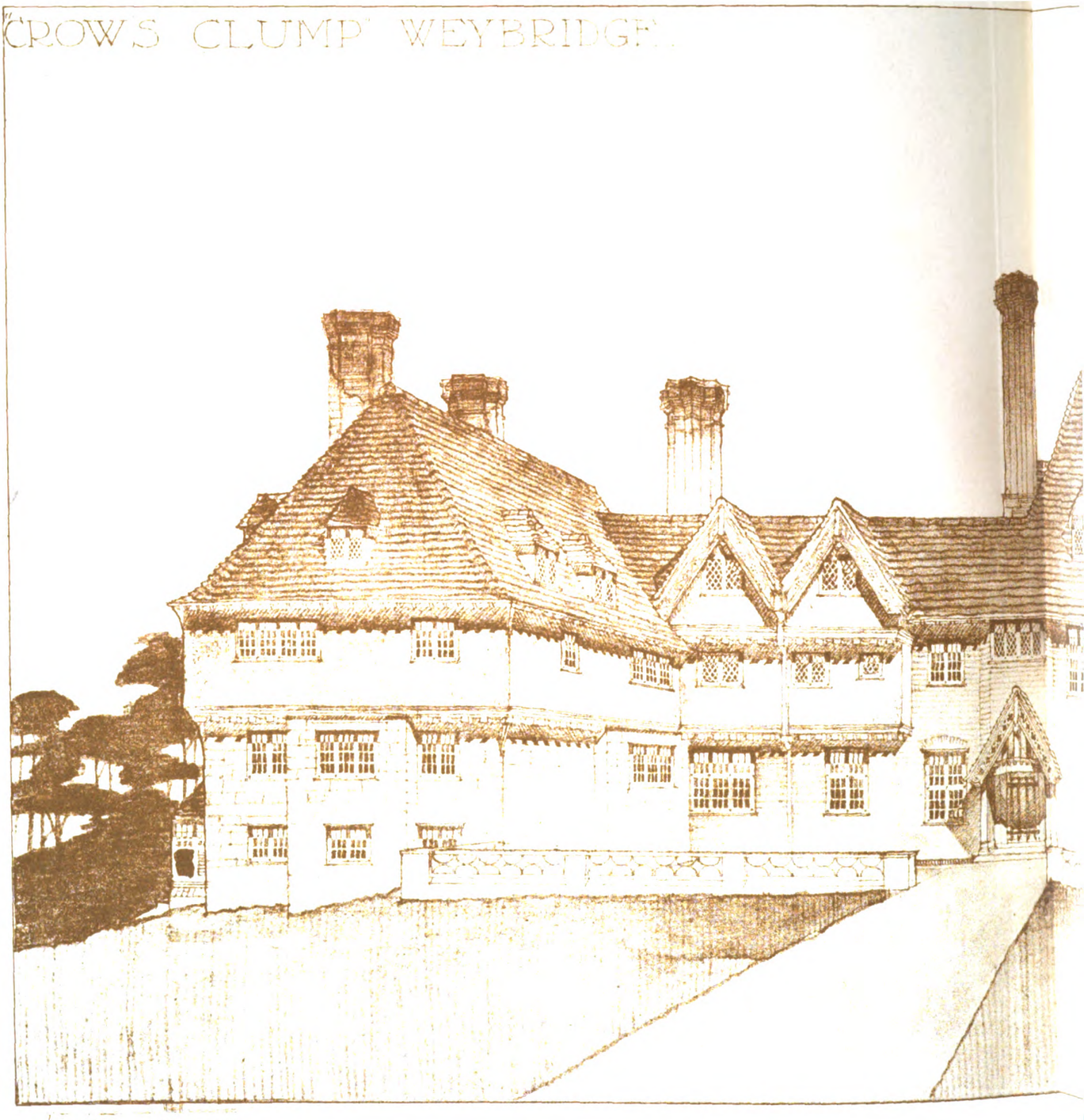
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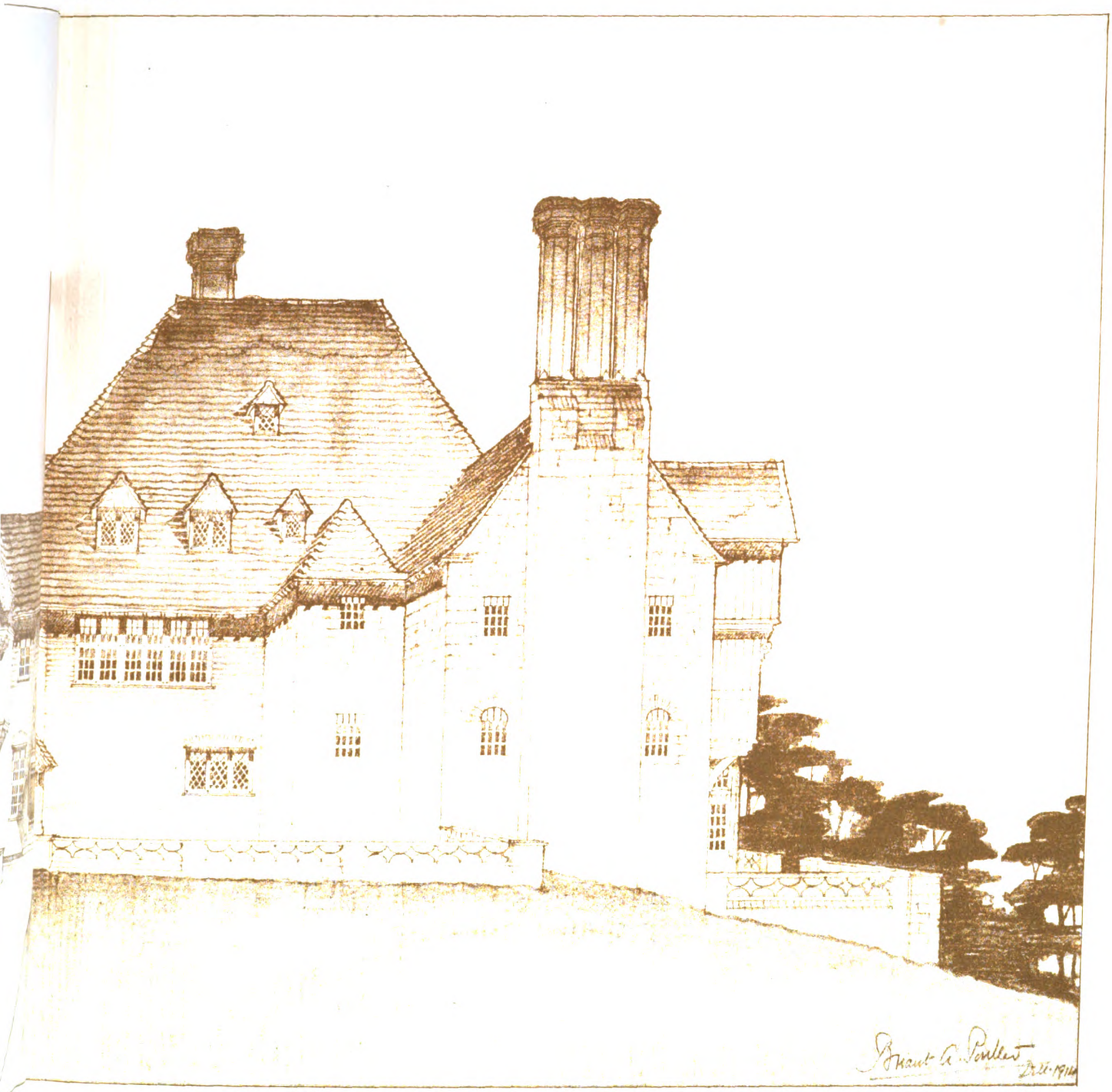


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cately adjusted, and in the human frame the beauty of eye would be nothing without sight, the arm nothing without might. Beauty in all these cases cannot be extricated from its connection with practical functions. If art is to have any real significance it must cling closely to life, and be the informing spirit in all man's doings in the world, and its central task must be concerned with the creation of houses with all the appointments of daily life.

The idea that there is something vulgar in usefulness, and that art is only to be concerned with useless tasks, is a doctrine which flourished in Victorian days. It is a doctrine which is dying hard to-day. It is a doctrine which is refuted by every old English town and village and by all the treasures of our museums, while the fruits of it are seen in the manifold ugliness of modern life. Let us hope that art may be again what it has been in the past, the reward of all constructive labour, and not only the possession of a few, so that the craftsman may recapture some of that dignity and joy of life which was once his portion and his heritage.

STRESS DISTRIBUTION IN ENGINEERING MATERIALS.

At the recent meeting at Manchester of the British Association for the Advancement of Science, a report was presented by the committee appointed to report on certain of the more complex stress distributions in engineering materials. The committee consists of Professor J. Perry (Chairman), Professors E. G. Coker and J. E. Petavel (Secretaries), Professor A. Barr, Dr. C. Chree, Mr. Gilbert Cook, Professor W. E. Dalby, Sir J. A. Ewing, Professor L. N. G. Filon, Messrs. A. R. Fulton and J. J. Guest, Professors J. B. Henderson, F. C. Lea, and A. E. H. Love, Mr. W. Mason, Sir Andrew Noble, Dr. F. Rogers and Mr. W. A. Scoble, Dr. T. E. Stanton, Mr. C. E. Stromeyer, and Mr. J. S. Wilson. From their report we give the following extracts:—

The report presented at the Australian meeting of the British Association called attention to the desirability of obtaining complete and systematic data with regard to three definite materials—namely, a mild steel, an axle steel (carbon 0.3 per cent.), and a nickel steel alloy. The committee obtained a stock of one ton of mild steel early in 1914, but owing to the outbreak of war further supplies of the other materials are not yet available. The physical properties of the mild steel now in the possession of the committee have been the subject of several investigations, and a chemical analysis made at the National Physical Laboratory has been furnished by Dr. Stanton as follows:—

C=0·132 per cent.
Si=0·028 „
S=0·017 „
P=0·028 „
Mn=0·300 „

The material, which is from a simple melting, shows the influence of the subsequent rolling as may be observed from some preliminary tensile tests furnished by Mr. Cook, Table I.

Tensile Tests of B.A. Mild Steel as received from the Makers.

TABLE I.

Nominal diameter of bars, inches	$\frac{3}{8}$	$\frac{3}{4}$	$1\frac{1}{16}$	$1\frac{5}{16}$
Actual diameters of bars, inches	·385 machined	·811	1·068	1·324
Yield stress in tons per square inch	23·95	19·35	15·80	13·40
Maximum stress in tons per square inch	26·40	24·40	23·40	22·40
Percentage elongation on 8 inches	22·2 on 6 in.	33·5	33·7	37·6
Percentage elongation on 2 inches	27·5	55·0	58·5	66·5
Percentage contraction of fracture	69·8	69·8	65·6	66·2

Professor Dalby has also investigated the properties of a specimen of this steel, cut from a rod $1\frac{1}{16}$ inch diameter, with an apparatus in which the load and extension are recorded automatically upon a photographic plate.

Table of Data.

Original diameter of specimen . . 0·564 in.	Area=0·25 sq. in.
Diameter of fracture . . . . 0·324 in.	Area=0·0825 „
Stress at yield point	=18 tons per sq. in.
Ultimate stress reckoned on original section . .	=24·8 „
Actual stress of fracture	=53·8 „
Percentage reduction of area	=67·4
Distance between gauge points	=5·00 in.
Extension on length of 5 in.	=1·53 in.
Elongation on length of 5 in.	=30·6 per cent.
Corresponding elongation for a standard length of 10 diameters=5·64 in.	=29·7 per cent.
Young's Modulus (E) in pound and inch units . .	=30·3×10·6

Photomicrographs made by Professor Dalby and Dr. B. P. Haigh show that the structure is of a usual type for steel of this composition. The experiments prove that the influence of rolling is considerable and that comparable results cannot be obtained without annealing by some standard method which will bring the material to a uniform molecular structure for all sizes of bars.

It has been suggested that the bars should be heated at a temperature of 900° C., and cooled in the air. Mr. W. A. Scoble has made an investigation of one of the sizes of bars after heating to 900° C. in an electric furnace, and allowing them to cool in position. An account of his results is given in Appendix A.

An investigation of the effects of alternating stress has also been made by Dr. B. P. Haigh, and is described in Appendix B.

APPENDIX A.

Report on Static Tests of a Mild Steel received from the British Association Stress Committee.

By Mr. W. A. SCOBLE.

The preliminary tensile tests made by Mr. Cook showed that the yield stress varied from 23.95 tons per square inch for the $\frac{3}{8}$-inch bar to 13.40 tons per square inch for the $1\frac{5}{16}$-inch bar. To compare the results of static tests on the different bars it was clear they should be brought to a uniform condition, or the advantage of having them of the same steel would be neutralised. At this time the question of annealing had not been raised, but the specimens for which the test results are given below were all subjected to the following treatment. The specimens were cut from a $\frac{1}{2}$-inch round bar, placed in an electric furnace and heated with the furnace to a temperature of about 900° C. The bars were allowed to cool inside the furnace.

Tension Test.—The specimen had screwed ends and was turned down to 0.499-inch diameter. There was a very slight indication that the strain increased more rapidly than the stress. The extensometer used was of special design, and the measurement of elongation was certainly correct to within 0.5 per cent.

Yield stress	10·04 tons per sq. inch
Maximum stress	20·89 „ „
Elongation on 5 inches (10 diameters)	36 per cent.
Reduction in area at fracture	69·6 per cent.
"E" 28,800,000 lb. or 12,850 tons per sq. inch.	

Bending Test.—The specimen was turned to 0.4365-inch diameter and subjected to a uniform bending moment. The deflection was measured on a length of 4 inches by a sensitive piece of apparatus supported on the specimen.

Bending moment at first yield	168 lb.-inches.
Maximum stress „ „	9·18 tons per sq. inch.
Final bending moment	260 lb.-inches.
Stress, assumed uniform over section . .	8·37 tons per sq. inch.
"E" from straight portion of curve . . .	30,400,000 lb. per sq. inch. 13,900 tons per sq. inch.

Torsion Tests.—The diameter of the test piece was 0.4367 inch, and the twist was measured on a length of 4.47 inches. The curve deviates from the straight line at a torque of about 120 lb.-inches (3.27 tons per square inch), and complete yield takes place at 240 lb.-inches (5.31 tons per square inch on the assumption of uniform stress distribution).

This result was considered to be unsatisfactory, and another torsion test was made on the specimen which had already yielded slightly by bending. There appeared to be no straight line portion to the torque-twist curve, a time effect was measured at 110 lb.-inches (3.0 tons per square inch), and final yield took place at 210 lb.-inches (4.65 tons per square inch on the assumption of uniform stress distribution).

These results present certain difficulties. The tension test was satisfactory and the data obtained are what would be expected from the grade of steel and from the tests made by Mr. Cook. The elastic limit and yield point appeared to coincide at a stress of 10 tons per square inch. Judged by the first yield the steel is weaker under a bending load (9.18 tons per square inch), but the point is clearly defined on a carefully plotted load-deflection diagram. There was a considerable creep when the skin stress would be 12 tons per square inch, assuming Hooke's Law to hold. The final stress was evidently between 14.2 (Hooke's Law) and 8.37 tons per square inch (uniform distribution), and it appears that 9.2 tons per square inch is very approximately correct for the yield point stress by bending. The torsion results deserve special notice. The first yield apparently took place at 3.27 tons per square inch skin shear stress, and the test piece gave way and was twisting slowly but con-

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tinuously when the skin stress was between 6.54 (Hooke's Law) and 5.31 tons per square inch (uniform distribution). The stress difference at first yield appears to be much less in torsion than under bending or tension, but the flow stress difference for torsion is greater than for tension, and prabably also greater than for bending. In the second torsion test it is impossible to locate a yield point, but the final flow shear stress was between 5.71 (Hooke's Law) and 4.65 tons per square inch (uniform distribution), a result which gives a stress difference in good agreement with that from the tension test.

APPENDIX B.

Report on Alternating Stress Tests of a Sample of Mild Steel received from the British Association Stress Committee.

By Dr. B. P. HAIGH.

The material supplied was in the form of $\frac{9}{16}$-inch rolled bar, and was described as "dead-mild": its tensile strength was approximately 26 tons per square inch, with an elongation of about 21 per cent. on an 8-inch specimen, $\frac{3}{8}$ inch in diameter. The results of two tensile tests are given below, column A giving the figures obtained in a preliminary test made by Mr. Cook, and column B those in a very slow test, lasting over thirty minutes, made at Greenwich:—

	A	B
Diameter of specimen (turned)	0·385	0·374
Yield stress, tons, sq. in.	23·95	21·0
Maximum stress, ditto	26·4	25·2
Elongation, per cent.	22·2 on 6 in.	20·5 on 8 in.
Reduction of area at fracture, per cent.	69·8	71·4

A Brinell test, in which a standard 10 mm. ball was pressed upon a longitudinal section of the bar, with the standard load of 3,000 kg., gave an impression having a diameter of 5.78 mm., indicating a "hardness number" of 104 kg./sq. mm., equivalent to 66 tons per square inch. The ratio between the maximum stress of the tensile test and the hardness is 0.40 to 0.38, according to the value taken for the tensile test. The specimens used in the tests which are now described were not annealed, but were tested in the condition in which the metal was received.

Alternating stress tests were carried out in a machine of the type described at the Dundee meeting of the Association, 1912. In this machine the alternating stress applied to the specimen is obtained by combining two pulsating forces (derived from two-phase magnets) acting upon opposite sides of a single armature to which one end of the specimen is rigidly coupled. The inertia force required for the oscillatory acceleration of the armature is cancelled by the force of deflection of a spring which is adjusted to suit the frequency of the test. The load applied to the specimen is determined by measuring the voltage induced in a fine wire secondary coil, wound close to the pole faces of the magnets. To standardise the machine, a phosphor-bronze specimen, fitted with an extensometer, and previously tested under steady stress, is inserted in the machine and stressed bp the application of an assigned voltage at the desired frequency. The range of extension measured under alternating stress may be used as the basis of measurement, or, alternatively, the alternating stress may be converted to a steady stress by reversing the pull of one of the two magnets. Stroboscopic observations showed that the stress applied to the specimen varies very approximately in a sine wave, and it is estimated that the load range of stress can be determined with an accuracy within 1 per cent. Combinations of alternating and steady stress are obtained by extending or compressing the spring used for compensating the inertia of the armature. The stiffness of this spring having been measured, the magnitude of the steady stress is determined by measurement of the deflection of the spring.

The tests may be arranged in seven series, and are summarised in the table given below. In the first series the stress alternated between equal intensities of tension and compression. In three series, II. to IV., steady stresses of tension were applied in combination with the alternating stress, and in the final three series, V. to VII., steady stresses of compression were combined with the alternating stress. The frequency of stress employed was the same in all series—viz., 2,000 per minute. The duration of the tests followed by fracture varied from a very few cycles up to eight million. Other tests were continued beyond this number, in one instance to seventeen million cycles, without fracture.

It is clear that each series of experiments indicates a limiting range of stress below which the endurance increases with very great rapidity. It may be doubted whether even the longest tests indicate an absolute fatigue limit, but the asymptotes are at least sufficiently clear to indicate a fairly definite value. These values are summarised for the several series in the following table:—

Series	Steady stress Tons per sq. in.	Limiting range of alternating stress Tons per sq. in.
I.	Nil	26·0
II.	4·95	24·5
III.	9·87	21·5
IV.	12·80	17·5
V.	−5·21	23·5
VI.	−9·35	21·5
VII.	−12·20	19·5

THE LONDON ASSOCIATION OF MASTER DECORATORS.

FROM the seventh annual report of the above Society we take the following extracts:—

New Members.—During the year five new members have joined the Association.

Labour.—At the date of our last report, we were able to report a settlement of the dispute between the Men's Union and the Masters, and it gives the Council much pleasure to report this year that there have been no differences of opinion of a serious nature between the respective bodies, and it was found necessary on one occasion only to refer the matter in dispute to the Conciliation Board for settlement. The point in dispute then was whether, by offering a workman who had been receiving 10*d.* per hour 9½*d.* per hour upon his starting a fresh job, the employer had committed a breach of the Working Rules, which justified the Society in withdrawing their workmen in the employment of the firm concerned. The Conciliation Board, consisting of Messrs. C. E. Wilkinson, John Anderson, and Alexander Davidson, and three representatives of the Men's Union, met, and at their first meeting resolved that, although the meeting did not agree that the employer had infringed the Working Rules Agreement, he should be asked to reconsider his decision as regards the rate of pay. The employer, however, did not see his way to recede from his position, and a further meeting, constituted as before, was held, and at that meeting it was resolved that the operatives' representatives should report to their committee that the Conciliation Board felt that the matter should not be pursued further, but that if their Committee insisted upon putting it before an arbitrator, the Board would requisition his services in accordance with the terms of the rules.

The Operatives' Committee resolved to adopt the latter course and the matter in dispute was therefore submitted to Mr. F. A. Greer, K.C., Board of Trade Conciliator, who, having ascertained the facts, at a further meeting of the Conciliation Board, decided and awarded that the employer had not committed a breach of the working rules, and that the Society were not justified in withdrawing their workmen.

Schedule of Prices.—The schedule of prices which was in course of completion at the date of the last report has now been in the hands of the trade for some months, and from the reports received the great trouble which the Sub-Committee took in producing the schedule has been amply justified and rewarded by the reception which it has met with.

Technical Education.—It is with special pleasure that the Council refer to the Education Scheme. It may be within the recollection of the members that the Council promised to contribute an annual amount towards a prize fund for the benefit of students attending the London County Council School of Building, Brixton, and at a general meeting of the Association, held on March 17, 1915, the President presented prizes to each of the following prize-winners:—

First prize, David H. Stephens; second prize, James F. Johnson; third prize, Albert E. King; fourth prize, Claude J. Humphries.

Mr. Richards, the Principal of the School, was present, and spoke as to the work of the school.

The Council particularly wish members of the Association to note that between January and Easter next ten boys will have completed their curriculum in the London County Council Decorators' School, and will be available for employment, according to the demand, and it is to be hoped that members will avail themselves of this opportunity of securing properly trained boys. With further reference to the work of these classes, it is gratifying to note that at the recent City and Guilds examination for painting and decorating work, Herbert Bernard Cayley, another

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student, obtained the first prize in the second grade, thereby qualifying for the bronze medal and a money prize.

Convention.—In our last annual report it was stated that the National Association of Master House Painters and Decorators of England and Wales, Incorporated, proposed holding its 1916 Convention in London. It is with regret we have to announce that the project has had to be abandoned, and our regret is intensified by the causes which have forced that decision upon the respective Associations. We will speak first of the primary cause, which, being of a national character, takes first rank in the thoughts of all. We refer to the war, the colossal struggle in which our country is engaged in the interests of justice and freedom. The matter was given most careful consideration and it was as recent as April last that the London Convention Committee, having regard to the unsettled state of the country, recommended that the Convention, proposed to be held in London in 1916, be postponed to a date to be fixed later. Mr. W. G. Sutherland was present at that meeting, and those others who were present little thought that matters would so speedily and in such a tragic manner be brought to a head. We now refer to Mr. Sutherland's death, which occurred suddenly shortly afterwards. By his death the moving spirit, with reference to the Convention, had gone, and it was felt that the combination of adverse circumstances was sufficient reason for abandoning the project for the present. Mr. Sutherland and his work were so well known to the members of the Association that it is unnecessary to refer to either at any length, but we feel we will be but carrying out the wishes of the members if we place on permanent record the deep respect and esteem in which the deceased gentleman was held by all who knew him and the feeling of profound loss which is shared by us through his death.

Council.—Under Rule VII. the President, Vice-Presidents, and Treasurer retire from office.

Mr. Mawer Cowtan Cowtan signified his willingness to allow himself to be nominated to fill the President's chair, provided he was not called upon to take office till October, and as Mr. C. E. Wilkinson, the retiring President, agreed to act until then, the Council recommend the election of Mr. Mawer Cowtan Cowtan as President at the forthcoming general meeting. The Council also recommend the re-election of the following Vice-Presidents: Messrs. H. L. Cabuche, W. Stewart Greene, C. A. Hindley, J. G. Howard, T. S. Rowden, and the election of Mr. A. Andrews, of Messrs. Jones & Andrews, Beckenham, as an additional Vice-President. Further, that Mr. J. J. Honeychurch be re-elected Hon. Treasurer.

Under Rule VIII. and amendment thereof, the Council consists of not more than thirty members, one-third of whom retire annually. The retiring members are Messrs. W. E. Chester, Herbert N. Hornsby, E. W. Norman, H. Costa, T. W. Willson, J. G. Howard, W. Dix, J. G. Watson, F. Hillen, and A. G. Rhind, but it is felt by the Council that, owing to the exceptional circumstances under which most people are working at present, it is desirable that the constitution of the Council should not be disturbed meantime, and it will, therefore, be proposed that the retiring members be re-elected at the forthcoming general meeting, and that Mr. H. C. Marillier, managing director of Messrs. Morris & Co., decorators, Ltd., of Oxford Street, be added to the Council.

Meetings.—During the year nineteen meetings, exclusive of the meetings of the Conciliation Board, have been held.

At a general meeting held on March 17, 1915, an interesting and instructive paper entitled "The Progressive Decorator," was read by Mr. Archibald Vickers. There was a large attendance.

Certificates of Membership.—The Association having reached the seventh anniversary of its formation, it has been felt that it could lay claim to being an established institution of the trade in London, and that some tangible form of certificate of membership should be issued to its members. Through the courtesy of certain members, a selection of designs of most excellent workmanship was submitted for consideration, and with the assistance of Mr. Arthur Wilcock, the design prepared and submitted by Mr. Stewart Greene was selected, with modifications, as being the most suitable. The certificates are now being prepared and will be issued to the members in due course.

The Council wish to thank the other members who kindly prepared designs for so generously giving their time and labour to the work, and also to record their appreciation of the able assistance given by Mr. Wilcock in coming to a decision as to the most suitable design.

Trade Discounts.—The protection of the trade in the matter of discounts continues to receive the earnest attention of the Council, and negotiations are at present pending with the National Light Castings Association. The Association was instrumental at the beginning of the war in inducing the Wallpaper Manufacturers to withdraw the proposed advance of 10 per cent. on wallpapers.

Dinner.—Owing to the outbreak of war it was not considered fitting that the annual dinner should be held last year, but the question of holding it this year has been considered by the Council, and it has been resolved to hold a dinner on the same evening as the annual general meeting.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CHESHIRE.

Cheadle.—No. 12 Stockport Road: bakehouse extension, for Mr. Myerscough.

Cheadle Hulme.—Bungalow, Heath Bank Road, for Mr. C. Locke.

Chester.—The "Ring o' Bells" Inn, Foregate Street: alterations (£1,200).

Heswall.—Church. Mr. R. T. Beckett, A.R.I.B.A., architect, 9 Newgate Street, Chester.

DEVON.

Paignton.—"Balholm": lounge hall, for the Misses Slater.

Four houses, Great Headland Road, for Messrs. Melhuish & Berry.

Four houses, St. Paul's Road, for Mr. J. Popplestone.

Marist Convent Schools, Fisher Street: dormitories, &c., for the Marist Sisters.

ESSEX.

Chelmsford.—Works, Lower Anchor Street: extension, for the National Steam Car Company.

Halstead.—Isolation Hospital, Mount Hill: addition. Messrs. Goodey & Cressall, A.R.I.B.A., architects, St. Peter's Chambers, High Street, Colchester.

HAMPSHIRE.

Aldershot.—Isolation hospital: extensions.

Bournemouth.—Stourfield Council School: enlargement.

HERTFORDSHIRE.

Bovingdon.—The "Halfway House" p.h.: alterations, for the Chesham Brewery Company.

Letchworth.—One hundred houses, for Belgian workers.

LANCASHIRE.

Bolton.—House, Bury Road, Breightmet: alterations, for Messrs. M. Yates & Sons.

Six houses, Doe Hey Road, for Mr. F. Settle.

Hill Fold Mills, Belmont Road: extensions. Messrs. Potts & Hennings, AA.R.I.B.A., architects, 141 Bradshawgate.

Irlam.—Picturedrome, Liverpool Road, for Messrs. F. & H. Taylor.

Liverpool.—Storage, Stanley Dock warehouses (£11,400), for the Mersey Docks and Harbour Board.

Picturedrome. Liverpool Road and Enbutt Lane, Crosby, for Mr. George Smith.

MIDDLESEX.

Hounslow.—"Park Dene," Sutton Lane: additions. Mr. A. Alban H. Scott, architect (same address).

Isleworth.—Rubber factory, Worple Road: addition, for Messrs. Soole & Son.

Factory, corner of Worton and Twickenham Roads. Mr. A. Wintle, architect, 4 and 5 Adam Street, Adelphi, London.

NORTHUMBERLAND.

North Shields.—Shops and houses, corner of Lesbury Street and Gallant Terrace, East Howdon. Mr. S. Easten, architect. Messrs. Stephen Easten, Ltd., builders, Milburn House, Newcastle.

Two villas, Hawkey's Lane. Mr. J. W. Meadows, architect, Howard Street.

NOTTINGHAMSHIRE.

Rufford.—School. Mr. L. Maggs, architect, Shire Hall.

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Bolton.—Municipal Buildings; Brownlow Fold Council Schools.
Bristol.—General Hospital; Fine Arts Academy; Royal Hotel; Southmead Poor Law Infirmary; Summerhill and Eastville Council Schools.
Bath.—Pulteney Hotel; Empire Hotel.
Bury.—Brunswick Chapel, Nightingale Hospital.
Birmingham.—Halesowen Grammar School, Wolseley Motor Works, Barnsley Hall Asylum, Bromsgrove.
Broadmoor.—Criminal Lunatic Asylum.
Barnsley.—Workhouse; Infirmary; Baths and 8 Council Schools.
Brighouse.—Clifton Church.
Chester.—Town Hall.
Chadderton.—Town Hall.
Derbyshire.—Darley Dale, St. Elphin School.
Glasgow.—Blythwood Hotel; Masonic Halls, Rutland Crescent; City Bakeries, Ltd.; Salvation Army, Bath Street; Imperial Tobacco Co., Tobago Street; Port Dundas Distilleries; John Miller, Ltd., Printers, 322-334 St. George's Road; Kilmun Seaside Homes.
Leeds.—Town Hall; Municipal Buildings; Pearl Buildings; Market Hotel; Meadow Lane and Marsh Lane Police Stations; Kirkstall Road Baths; Free Libraries; Eldon Chapel; Beeston and Hunslet Wesleyan Chapels; Sion Chapel, Skinner Lane; Small Pox Hospital, Killenbeck.
Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.
Manchester and District.—Victoria Hotel, First-class Dining Rooms, Central Station; Lake Hotel, Belle Vue; Kardomah Café, St. Anne's Square; St. Wilfred's Church, Hulme; Nursing Home, Old Trafford; School of Technology; Art School; Geographical Society's Buildings, St. Mary Parsonage; Palatine Buildings; Picturedrome, Pendleton; Whittlebrook Chapel, Walkden; Trafford Arms, Alderley Edge; Axe and Cleaver Hotel, Altrincham; Bridgwater, Eccles; Crown Hotel, Longsight.
Nottingham.—Mikado Café.
Oldham and District.—St. James' Church; Free Library and Art Gallery; Infirmary, Imperial Picture Palace, Reform Club.
St. Helens.—Borough Sanatorium, Provident Hospital, and Council Schools.
Sheffield.—St. Jude's Church; Christchurch, Pitsmoor; Sanderson Bros., Newbold; Sword and Bayonet Works; Heeley Picture Palace; Victoria Hospital.

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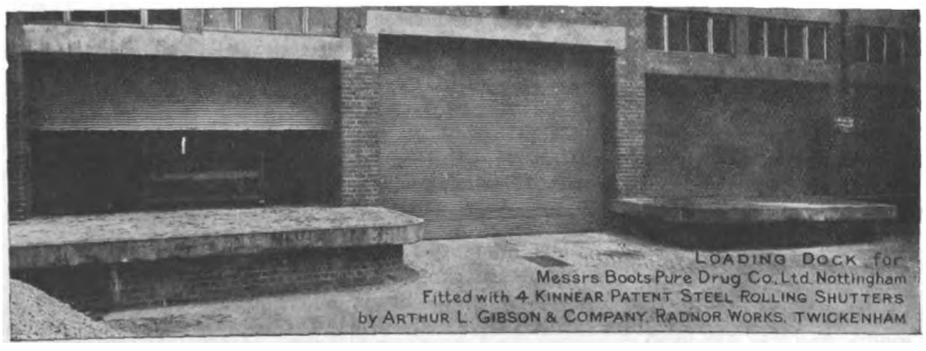
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ENGLAND—*continued.*

SOMERSET.

Bath.—War hospital, Weston (£5,500).

STAFFORDSHIRE.

Bilston.—Christ Church Elementary Schools, Coseley.

Hanley.—Factory. Mr. E. Stewart, architect, King's Chambers, Stoke-on-Trent.

Smethwick.—Works. Messrs. Pemberton & White, architects, 40 Bennet's Hill, Birmingham.

Walsall.—Isolation wards. Messrs. Hickton & Farmer, FF.R.I.B.A., architects, Bridge Street.

SURREY.

Guildford.—Proposed twenty-four cottages, Woking Road, for Messrs. Dennis Brothers.

Wimbledon.—Secondary school for 300 girls.

SUSSEX.

Worthing.—St. James's Hall: conversion into business premises.

WARWICKSHIRE.

Coventry.—Electric theatre, Foleshill Road: additions, for Mr. W. J. Henderson.

Factory, Gosford Street: extensions, for Messrs. Hotchkiss et Cie.

Garage, Gulson Road, for Mr. J. Daniels.

Garage, St. Ann's Road, for Mr. H. Deacon.

"Parkside": additions, for the Siddeley Deasy Company.

Twenty-two houses, Durbar Avenue, for Messrs. S. E. Cox & Co.

Seven houses, St. Andrew's Road, for Mr. T. H. Bird.

The "Great Meeting House," Smithford Street: boiler-house, for the Trustees.

Metal shops, Northey Road, for the Sterling Metals, Ltd.

Oil Store, Cash's Lane, for the Standard Motor Company, Ltd.

Stores, Holbrook Lane, for the Coventry Stamping Company, Ltd.

Workshop, Foleshill Road: addition, for Mr. A. A. Wincott.

YORKSHIRE.

Bingley.—Bungalow, Littlebeck, for Mrs. R. Hartley.

Cullingworth Mills: water tower, for Messrs. J. J. Broadbent & Co.

Motor garage, Prestthorpe, for Mr. L. Siggs.

Bradford.—Smallpox hospital.

Hemsworth.—Fifty-two Council houses.

Huddersfield.—Chemical Works, Deighton, for Mr. L. B. Holliday.

The "Mason's Arms" p.h., Lowerhouses: alterations.

Leeds.—The Victoria Picture Hall, York Road: addition and alteration.

Mytholmroyd.—House, Caldene Avenue, for Mr. H. S. Gill.

Sheffield.—Munitions factory, Grimesthorpe Road, for Messrs. Cammell, Laird & Co., Ltd.

Shipley.—Junction Mill: reconstruction. Messrs. Moore & Crabtree, architects, York Chambers, Cavendish Street, Keighley.

WALES.

Aberdare.—Central premises, Station Street: alterations, for the Aberdare Co-operative Society, Ltd. Mr. E. H. Henton, architect, 22 Cardiff Street.

Burry Port.—Public slaughter-house (£1,100).

Port Talbot.—The "Walnut Tree" Hotel, Aberavon: alterations.

SCOTLAND.

Cardonald.—Ardmore, Hillingdon Park Circus: conversion into houses, for the Rev. John Riddell.

Clarkston.—Double villa, Busby Road, for Messrs. Andrew Mickel & Co. (of Glasgow).

Giffnock.—Motor garage, Maryville Avenue, for Mr. W. Anderson (of Newton Mearns).

Glasgow.—Buildings, Aikenhead Road, Polmardie, for the British Oxygen Company, Ltd.

Premises, Polmardie Road: additions, for the Acme Tea Chest Company, Ltd.

Chemical Factory, Lochburn, Maryhill: additions and alterations, &c., for Messrs. W. Cooper & Nephews.

Johnstone.—The Hirst, Auchenlodment Road: garage and outhouses, for Mr. W. Stirrat.

IRELAND.

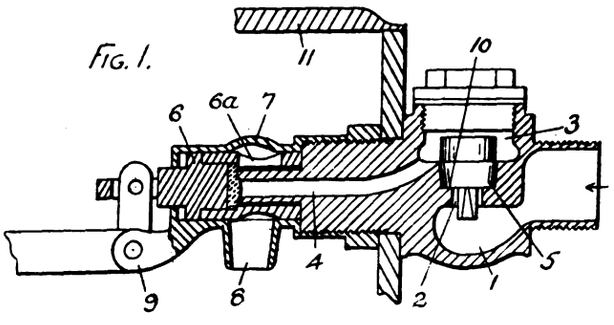
Belfast.—House, Stranmillis Road. Mr. R. Lynn, architect, 18 Ann Street. Messrs. J. Risk & Co., contractors, Cliftonville.

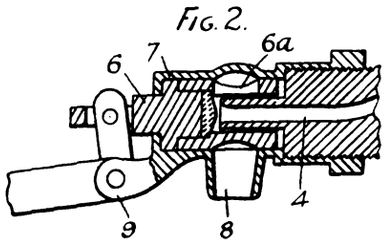
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 19,995. Sept. 21, 1914.—Flushing Apparatus. Nicholas Simpson, Charlecote, Priory Road, Hazelwell, Manufacturer, Birmingham.—This invention relates to valves for flushing apparatus, and has for its object to provide a back check should a breakage or leakage occur in the water main or other connection. This invention consists of a gravitative back check plug valve acting as a check against back pressure from above it, its effect being all the greater by such back pressure tending to force the valve against its seat, in combination with a slidable plunger float valve controlling the supply. Fg. 1 represents a longitudinal vertical section of a valve. Fig. 2 is a fragmentary section showing the plunger drawn outwards opening the supply. The valve body comprises a lower longitudinal chamber 1, a vertical passage 2, an upper chamber 3, and a longitudinal passage 4, all in communication through the valve 5. A horizontal plunger 6, slidable in the barrel 7, is adapted to open or close the outlet nozzle of the longitudinal passage 4, so as to allow the filling of the cistern and shutting off the supply through the pipe 8; the plunger 6 being operated by a ball lever pivoted to the lugs 9 and engaging the slotted end of the plunger 6. The latter is





provided with an opening 6ª in its walls, through which the inflow can pass to the cistern 11. The valve 5 is movable vertically and controls as a back check the communication between the lower longitudinal chamber 1 and the upper chamber 3 and longitudinal passage 4, and falls by gravity upon the seat 10. Normally, to fill the cistern, the horizontal plunger 6 is retracted as shown in fig. 2 so as to uncover the orifice of the longitudinal passage or supply pipe 4. The valve 5 is lifted from its seat 10 by pressure from the water mains acting in the direction indicated by the arrow and opens communication between the lower chamber 1 and upper chamber 3 through the vertical passage 2, the inflow passing the sides of the valve 5 and the walls of the vertical passage 2. When the cistern is filled, the slidable plunger 6 is pushed inwards so as to close the orifice of the longitudinal passage or supply pipe 4 as shown in fig. 1. Should a breakage or leakage occur in the water mains while filling the cistern or at any other time the valve falls by gravity and closes communication between the upper and lower chambers; but this closing is accentuated by the suction effect or back pull so that it is tightly held on the seat.—Sept. 22, 1915.

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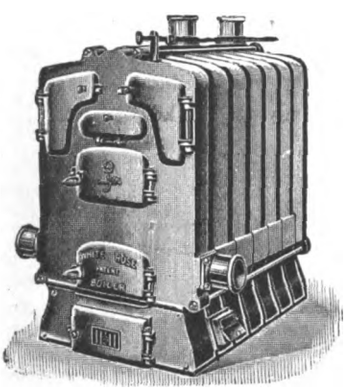
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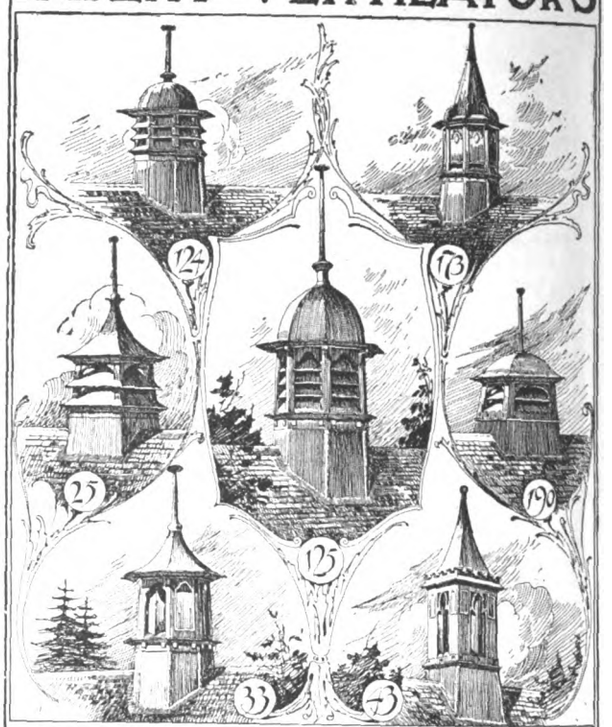
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, November 15.

Victoria and Albert Museum : University Extension Lecture VII., on "Renaissance Architecture : The Palaces and Churches of Venice," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Wednesday, November 17.

Northern Architectural Association : Opening Address of the Session by the President, Mr. R. Burns Dick, F.R.I.B.A. (Captain, Tynemouth R.G.A.), at 4 P.M.

Chadwick Public Lecture : Paper entitled "Some Conclusions on Housing our Workers," by Mr. W. E. Riley, F.R.I.B.A., at the Royal Sanitary Institute, 90 Buckingham Palace Road, S.W., at 8.15 P.M.

St. Paul's Ecclesiological Society : Paper entitled "Anchorite Cells," by Mr. Arthur D. Sharp, at 8 P.M.

Thursday, November 18.

British Museum : University Extension Lecture VIII. on "Greek Architecture : The Origins and Evolutions of the Doric Order," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

BUILDING STONES OF QUEBEC.—III.

THE slate industry in the province of Quebec bears the same general character as that of granite, plenty of material, paucity of production, but intensified to a supreme degree. Whereas, in the case of granite, the paucity of production is comparative only in view of the wealth of existent material, with slate it may be said that there is plenty of stone, but next to no quarries in working.

Roofing slate has been quarried in the Eastern townships of the province of Quebec since 1854, when a quarry was opened in the township of Cleveland, about 70 miles east of Montreal. Some time later quarries were operated on the same belt at Melbourne and New Rockland, and on other belts at Actonvale, Granby, Kingsey and other points. Although some of these quarries remained in commission for twenty years or more, they have all been abandoned with the exception of one at New Rockland.

Quite recently a new quarry has been opened at Long Lake in Témiscouata county, where a highly desirable dark grey slate occurs under excellent conditions for quarrying. The line of the Transcontinental railway passes across the property, and it is hoped that slate will be ready for shipment by the time the road is open for traffic. As Témiscouata county borders the St. Lawrence about 120 miles below Quebec city, this district looks the most promising of all the Quebec slate belts for supply to Europe from the point of view of transit.

The quarry still working at New Rockland is on the Melbourne-Cleveland slate belt, in which, as in most of the slate belts of the Eastern townships, the formation as a whole is cut up and rendered useless by numerous stringers of quartz. The areas of valuable material occur as bands between the more quartzose zones. In the present quarry, the good slate forms a belt about 200 feet wide, bounded on the northern side by a quartz band, and on the south-east by a harder and more fractured slate, which is succeeded by green serpentine. The detailed description of this quarry given by Dr. Parks in his report* is explanatory of the chief reason why the slate-quarrying enterprise in the province of Quebec has not been successful.

The quarry was opened in 1868, the pit now being worked extending along the strike for 500 feet. The north-west wall is formed by a belt six feet in width of hard slate with many quartz veins. This is followed by 60 feet of good slate, after which is 10 feet of worthless material succeeded by 70 to 80 feet more of good slate to the south-east wall. Here a narrow quartz seam striking N. 80° E., and dipping 80° to the northward, forms a large part of the present wall.

Parting planes occur parallel to both the strike and the dip of the formation at intervals, varying from a few inches up to six feet, these are known locally as "slants." The major set of joints (back joints) strikes N. 30° W., and therefore crosses the formation at right angles. These partings occur at intervals up to 16 feet. A second set strikes with the formation and dips at angles varying from 0 to 45° to the north-west; these are known as the "foot joints" and occur at intervals varying from a few inches up to six feet. In addition to these more or less regular partings, there is, in places, a development of sharply inclined, but limited diagonal cleavage planes known as "knives."

In the bands of good slate which are free from quartz veins there is little imperfection from foreign matter except from the occasional presence of thin calcite veins. There are few crystals of pyrites, but a little of that mineral occurs in the so-called "worms" which are very generally distributed through the formation. Owing to jointing and to the fact that the upper 30 feet has to be rejected on account of weathering, it is probable that little more than 10 per cent. of the rock raised is marketable stock.

Such being the conditions of the quarry, which on the doctrine of the survival of the fittest may be regarded as the best of the older quarries in the Eastern townships of the province, it is evident that the outlook of Quebec as a potential source of supply for roofing-slate is not encouraging.

The stone is a dark grey uniformly coloured mica slate with good cleavage and clear ring which darkens on long exposure. The stock splits easily on the grain, which is vertical. From the scallop, or direction at right angles to the grain, the cleave is less easily effected. The surface of the slates is fairly smooth and flat. Small papillose elevations occur in places caused by grains of hard siliceous matter. Considerable pyrites is present in small grains, but some slates seem to be quite free from these.

The production in 1911 was 1,833 squares, valued at from $4.50 to $5.50 per square for first quality f.o.b. Kingsbury (a mile from the quarry). Second quality is quoted at $4 to $4.25 per square according to size. Most of the output is used in Toronto.

The Témiscouata quarry, at the date of Dr. Parks' inspection, September 1913, had produced but 200 squares of slate, and none had been shipped. It was intended to market the slate at the same rate as the New Rockland product, at an average price of $5.25 per square f.o.b. quarry. The slate is very uniform in colour and is slightly darker than the New Rockland, though in some lights the difference is not pronounced. It might be said that there is a very slight cast of purple in this slate which is not seen in the New Rockland variety. The surface of the slate is scarcely as smooth as in the New Rockland type, and there is less reflection. No pyrites, worms, or other flaws were observed in the specimens collected.

* "Report on the Building and Ornamental Stones of Canada." Vol. III. Province of Quebec. By Wm. A. Parks, B.A., Ph.D. (Ottawa: Government Printing Bureau.)

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In the material of the abandoned quarries of Quebec province it appears that to the difficulties of quarrying, as obtaining in the New Rockland quarry, must be added indications, in many instances, of want of durability in the product.

In the account of the New Rockland quarry reference has been made to the occurrence there of green serpentine. Serpentine marbles exist in the province of Quebec, but there is no actual production of this type of stone, nor has any very serious attempt been made to determine the value of any of the deposits. Much that has been revealed has come to light in mining operations for asbestos, but the serpentine is of a very dark colour and without the beautiful markings that are shown in some museum specimens from a few localities. In all the deposits so far explored an excessive amount of fracturing has been observed, preventing the extraction of blocks of sufficient size to be of commercial value.

Limestones and sandstones for building purposes are found in excellent quality in the province of Quebec, but would not be economically possible for importation into Europe. On the whole the Quebec limestones are to be regarded as dense and compact rocks. Those chiefly used for building belong to the Ordovician system of the Palæozoic era and from the Chazy and Trenton series of formations of that system. The areas of the Chazy rocks are not extensive, but they yield some of the finest limestones quarried in the province, the better grades presenting a semi-crystalline structure. The Trenton formation, as developed in the province of Quebec, presents two general types of stone—a light-coloured semi-crystalline variety, much prized as a building material, and a harder, dark and thinner bedded variety, which is adapted only to rough building and for use as crushed stone.

Sandstone of a quality suitable for structures of importance is a rare occurrence in the province of Quebec, but more or less desirable stone has been raised from no less than six different formations, ranging upwards from the Potsdam to the Carboniferous.

Occurrences of rarer decorative stones have been observed in the province of Quebec, porphyries, garnetiferous gneisses, jasper, both red and green, fuchsite schist, the iridescent variety of felspar known as labradorite and other handsome felspars; but none of these materials are being mined, so that they merely represent possible sources of supply for the future.

NOTES AND COMMENTS.

In the middle pages of this issue of "The Architect" will be found a copy of the circular of the Selection Committee of the Architects' War Committee. This we have inserted at their request, because it may thus reach the hands of some members of the profession or connected with the profession whom they would otherwise be unable to reach. The business of war in the twentieth century, to be successfully conducted, demands the services of a large number who may never be required to handle a rifle, and these services often demand the peculiar technical training which architects and others connected with the building trade possess. The Architects' War Committee desire to organise the available strength of the architectural profession and the building trade so that this peculiar technical training may be available for the war service of our country. Therefore they ask all those who are prepared to give such service to fill in and send to them the form which we print, which may be easily detached, filled in, signed, and forwarded. Two essential points we may specially emphasise: those who sign the form must be prepared to give their whole time to the war service, and they will be paid. We do not think it necessary to explain the scheme of the Selection Committee, as it is very clearly set out in our pages, beyond adding this point: that we understand that the Committee have in view that, when they have received the replies they expect, they will be able to go direct to the officers in command, without red-tape and circumlocution, and offer them the services of a dozen, a score, or a hundred skilled specialists. We trust that everyone of our readers who is able to devote his whole time to war service will sign and send in this form, which we think shows that the Selection Committee has vindicated the ability of architects to organise. After all, what is the work of an architect? Is it not to organise the labours of many different craftsmen, and many different materials, so that there may be brought into being something that is useful for mankind and beautiful for his enjoyment? Possibly the war might have gone better for us by now if a trio of architects had been placed in charge of the organisation of the nation's resources fifteen months ago.

In connection with the War Committee's scheme, we understand that a special company for training candidates for commissions in the Royal Engineers, and other special branches of the Service, has been formed by Colonel W. Shirley, of the 28th Battalion, the London Regiment (Artists' Rifles) O.T.C. All applicants filling in forms and willing to receive preliminary training in this Corps should mark their forms "Will undergo training course." During training pay will be at Army rates for privates, with separation allowances on the usual scale.

We referred recently to the damage done to the church of the Scalzi (Santa Maria in Nazaret) at Venice occasioned by aircraft. We now learn that the fresco by Tiepolo on the vault has been almost destroyed and is irreparable. The fresco was of the same period as the famous picture of the Carmine (1743-44). It represented the Virgin expelling the heresies from her house. Round about the Madonna, both above and below, were groups of angels. The fresco covered the entire vault of the nave.

The bomb fell on the apex of the nave, bringing down almost the whole vault. Only fragments of the fresco remain on the part of the vaulting which springs from the pillars. The rest lies in fragments on the floor of the church.

The question of memorials is one that after this war will no doubt be acute. The tremendous loss of life will be accompanied by a desire for memorials of their illustrious dead by relatives of the fallen, and we shall be overwhelmed by offers of all kinds of mementoes. We commend to careful consideration the remarks of Mr. W. E. Parkinson, A.R.C.A., head-master of the York School of Art, and of the Archbishop of Dublin. There can, we think, be no question that the principle of collective memorials will be far better than the erection of lesser individual offerings. Mr. Parkinson, in a lecture at the York Art Gallery, said that a memorial should appeal not only to the mind but also to the eye, and he went on to remark that some memorials of to-day were of such ugliness as must add a new terror to death. He pleaded for fewer ornaments in churches and something more individual and distinctive. Would the war inspire any great art? Would it produce artists with great ideals and noble aims, or would it degrade and brutalise the artistic point of view? Either result was possible. War was a tragedy, but it had its sordid side also, and the artist who set out merely to illustrate some episode of the war always missed the inspiration of war as a perfect tragedy, and gave so much attention to the details of the subject that the larger aspect escaped him. The fact that the modern battle has become less and less picturesque should help us to realise that our aim should be to seek inspiration in the motive that actuates a nation at a time like this. Let us recognise that it is a tragedy, and raise our treatment to the tragic level. When we consider the self-sacrifice, the devotion to duty, the cheerful and uncomplaining endurance that is being displayed by all classes of the community in this struggle for national existence, it seemed impossible that art should remain untouched.

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The change would be more marked because it would not be hastily made. The art of the country after the war, instead of breaking out in all sorts of weird directions, would be purified and strengthened. We wanted work that was not a display of cheap meretricious ostentation, but work which in art represents adequately, properly, and nobly the splendid achievements of those whom we seek to honour. Speaking of the possibilities of our artists and sculptors, Mr. Parkinson said that neither our art nor sculpture was in a precarious condition, as instanced by two of the finest monuments of any age—the Clarence Tomb at Windsor by A. G. Gilbert, and the Wellington Monument in St. Paul's Cathedral by Alfred Stevens, two Englishmen. We should be flooded with memorials of the war, and it was to be hoped they would be worthy of the men and the occasion.

The Archbishop of Dublin, in a letter to Archdeacon Robert Walsh, wrote:—

My Dear Archdeacon,—I am much obliged to you for informing me of the desire of several of the leading parochial clergy of Dublin to obtain my opinion as to the course which it is wisest to take in reference to the increasing number of applications from bereaved parents and others to place small tablets in their parish churches, as memorials to their relatives who have fallen in the war. I am afraid that the number of such applications will be very large, for the war has brought sorrow into many households which have given of their best and bravest to the country's service.

On the one hand, the clergy would wish to meet the request of all parents and friends for a personal memorial. On the other hand, the multiplication of small tablets on church walls is a disfigurement to the fabric, of which the clergy and vestry are the natural guardians, with the churchwardens. Again, if tablets are thus erected in memory of those only whose relatives are rich enough to pay for them, I fear that many names of brave young Irish Churchmen will remain uncommemorated.

I have had to consider this problem from its personal side, and I sympathise greatly with what I understand many of the clergy to desire—namely, that after the war a parish memorial should be placed in each parish church, upon which should be inscribed the names of all the parishioners who have fallen on the field of honour. To this all relatives would, I am sure, gladly contribute in proportion to their means; and such union in the expression of a common sorrow, thankfulness, and hope would tend to draw rich and poor nearer to each other. I do not desire at all to impose my own opinion upon the clergy in such matters, but, as you have asked me, I have no hesitation in saying that a joint memorial at the end of the war seems to me more suitable than a number of small tablets.

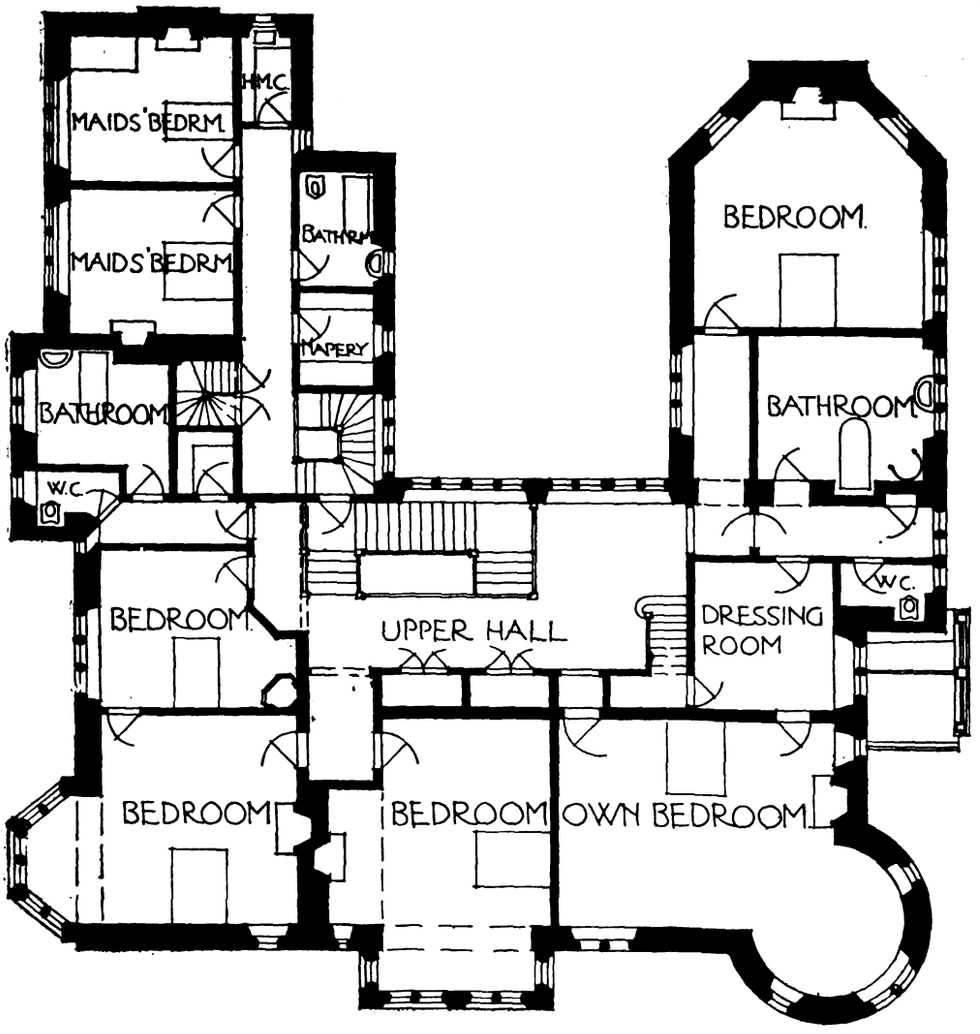
Some interesting discoveries made at Bow Church, Cheapside, London, were described in a paper read by Mr. F. Lambert on "The Excavation carried out by the Association in the Crypt of the Church of St. Mary-le-Bow, Cheapside." He pointed out that when Sir Christopher Wren rebuilt the tower of the church he found a Roman causeway, on which the foundations of the tower were laid. In the recent excavations a trench was dug along the east side of the crypt, along the line of Bow Lane. The first three or four feet down consisted of made earth; the next seven feet was a black peaty swamp, and at the bottom of this mass were two oak piles with planks which had been used to embank a stream running almost north and south across Cheapside. The question was whether that stream could be followed in any other part of London. He thought it could. The old idea that Moorfields was a primitive swamp had long been abandoned in favour of the more reasonable explanation that the swamp was caused by the Walbrook, which used to flow through London Wall by means of culverts, one or two of which had been found. In late Roman times, or after the Roman evacuation, these culverts were neglected, and became blocked up. The river, therefore, spread a considerable distance, and the swamp began to form, and found an outlet by passing underneath the foundations of the walls all the way along from Cripplegate to Bishopsgate, and so into the Thames. It was already known that a swamp existed under the east end of St. Lawrence's Church, under the Council Chamber of the Guildhall, and under the Public Health Office of the Corporation in Basinghall Street, and he suggested that these were caused by a stream parallel to the Walbrook, which, flowing south, had in turn caused the recently-discovered swamp under Bow Church. By connecting these four places they got the line of flow. The presence of the swamp crossing the middle of Cheapside caused the Normans who built Bow Church to lay exceedingly massive and deep foundations.

Much distress exists among artists who, for legitimate reasons, cannot follow the examples of their numerous colleagues now serving with the King's forces. Sculptors are suffering, perhaps, more than painters, and though a good deal has been done to help those in an unfortunate condition to overcome the financial difficulties due to the war, there are still many men who require immediate and continued assistance. It has occurred to a number of their better-placed fellow-craftsmen that the best way to render aid would be to enable those afflicted to sell their smaller works, and thus in some measure help to keep them free from a form of charity which is fatal to the spirit of independence so necessary to the creation of vital art. For this purpose a representative committee has been formed with the Queen as patron, and Sir Thomas Brock as chairman, supported by Countess Gleichen, Sir George Frampton, Sir W. Goscombe John, and Mr. W. Reynolds-Stephens, all eminent sculptors. An exhibition which has been arranged for will be opened at Messrs. Waring & Gillow's, Oxford Street, on the 25th instant. Almost all the exhibits will be ideal works executed in permanent material and the prices will be very moderate. They will be shown by electric light, amid furniture to suit their character, so that the various pieces will be seen in a home-like atmosphere. Twenty-five per cent. of all money received by sales will be paid into a fund for the assistance of sculptors who are in monetary trouble.

"The Chapel on the Bridge" at Rotherham may after all be restored, and put to use as a place of worship. It is archæologically, as well as historically, a most interesting building. After falling out of use for its original purpose, it became an almshouse, the town gaol, and a sale-shop. It is only in the last two or three years that rent from a shopkeeper has been received. It was in the mind of Sir C. J. Stoddart to make the structure again worthy of the town, and a scheme was formulated by him. His death, however, took place before the work could be carried out, but his will showed a legacy to be invested in order to yield a sum towards the carrying on of religious services. The owners, viz., the Feoffees of the Common Lands of Rotherham, at a full meeting resolved to extend to the Vicar and churchwardens of Rotherham Parish Church the same offer made to the late Sir Charles Stoddart in connection with the restoration of the Chapel on the Bridge on the same terms and conditions agreed upon by the Law Clerk on the one side and Mr. Cockburn on the other, subject to the approval of the Charity Commissioners.

Mr. George H. Widdows, F.R.I.B.A., architect to the County Educational Committee of Derbyshire, gave a lecture last week to the Glasgow Institute of Architects in the Institute's Rooms, 39 Elmbank Street, Glasgow. Mr. John Watson, F.R.I.B.A., president of the Institute, was in the chair, and there was a large attendance of members. The subject of the lecture was "School Planning in Derbyshire."

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FIRST FLOOR PLAN.

"BENEFFREY," POLLOKSHIELDS, GLASGOW.—Mr. W. H. McNab, F.R.I.B.A., Architect.

THE GRAND PUMP ROOM, BATH.

The historic Grand Pump Room is a well-proportioned hall constructed in the eighteenth century as a luxurious lounge wherein patients could take the waters direct from the natural source knows as the King's Spring. From the time of the Roman invasion the tasteless waters of Bath have been employed, both internally and externally, for curative purposes.

During the past few months the Pump Room has been entirely redecorated, and is now reopened for the use of visitors. The changes made this year have removed all signs of decay, and have restored the elegant Georgian hall to its original design, while the scheme of decoration brings out to the best advantage the beautiful architectural proportions. The keynote was to make the famous old Pump Room bright and cheerful, and to retain its Georgian individuality and atmosphere. The re-decorations have been carried out in ivory-white and cream, picked out with dulled gold. The original gilding has been retained as far as possible, and the added gold has been toned down to match. Nothing of the desirable antique has been interfered with.

At the four entrances are beautifully carved doors of old mahogany. The former ugly tiles in the fireplaces have given way to tiles of a quiet grey tint which provide the proper setting to the old fire-dogs, iron fire-baskets, and green marble chimney-pieces and kerbs. The large window has been fitted with clear glass in order to restore the view of the King's Bath with its hot spring in the centre.

The old oak floor has been cleaned and polished. The greater portion of the furniture has been in use since the eighteenth century, and the historic paintings remain as before. So, too, does the statue of Beau Nash, with beneath it the Tompion clock presented by its maker in 1709. The restoration of the Pump Room has disclosed circular looking-glasses which adorned the original hall, and these are now displayed just as they were found, around the niche in which the waters rise to the drinking-fountains. The Chippendale settees, made for the Pump Room, were broken during an election riot ninety years ago, while the seats vanished entirely, and were recently found in a lumber cellar and brought into use.

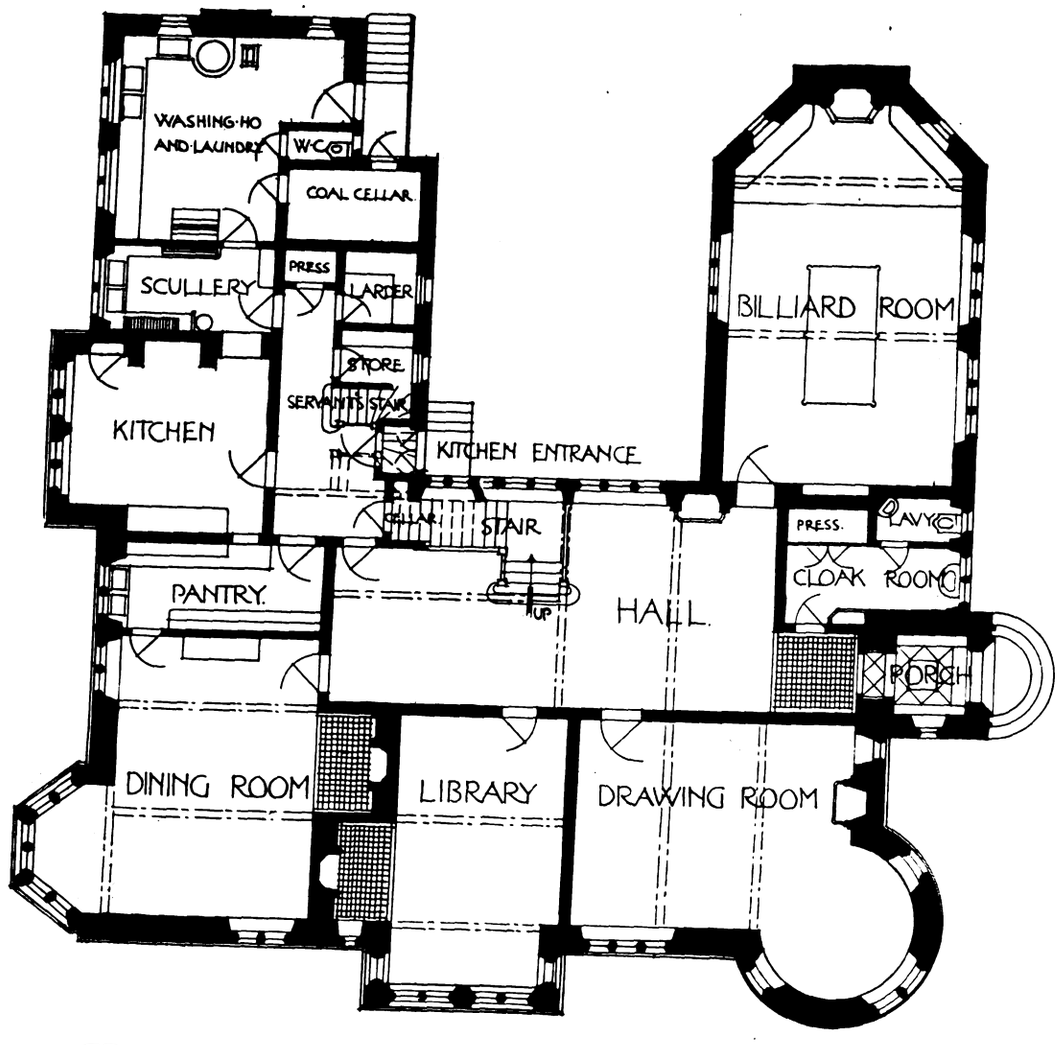
The whole of the work has been carried out by Mr. Alfred J. Taylor, M.S.A., architect to the Baths Committee. The contractors were Messrs. Haywood & Wooster, Bath, and a new system of heating and ventilation has been installed by Messrs. Haden & Sons, Trowbridge; whilst revolving doors have been fitted to the entrances to minimise draught.

ILLUSTRATIONS.

THE STATION LA PAZ, BOLIVIA, AND THE STATION, NORTH YARD, ANTOFAGASTA, CHILI.

Shortly before the war the work upon these stations was put in hand, the railway company acting as its own contractor for the main structure, Messrs. Higgs & Hill, of London, carrying out the more elaborate portions of the building where these could be conveniently shipped in a finished state. The Carrara facings of Messrs. Doulton & Co. were to be employed in the Antofagasta station. The whole of the work has been necessarily held up owing to

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GROUND FLOOR PLAN

"BENEFFREY," POLLOKSHIELDS, GLASGOW.—Mr. W. H. McNab, F.R.I.B.A., Architect.

the disorganisation to the South American railroads caused by the war. The architect is Mr. Arnold Mitchell, F.R.I.B.A., of 17 Hanover Square, W.

"BENEFFREY," POLLOKSHIELDS, GLASGOW.

This is one of the three exhibits which Mr. William Hunter McNab, F.R.I.B.A., of 121 West George Street, Glasgow, had on view in the Architectural Section at the Royal Scottish Academy.

"Beneffrey" is a large house erected on an elevated site commanding an open and extensive outlook, situated at the extreme south-west boundary of the city of Glasgow. It is built of light-coloured freestone, with roof coverings of Elleswater green slates finished with stone ridges. A noticeable feature of the internal treatment is the large amount of stonework that has been used: stone fireplaces have been built in all the public rooms, as well as in the hall. The internal finishings generally, such as panelling in hall, dining-room, and billiard-room, are of New Zealand Kauri pine, stained and dull polished. These apartments are panelled up to height of doors, the latter being of Austrian oak. The deep friezes above are of soft white, as is the painting on the ceilings, which are timbered with Kauri pine. At the junctions of the heavy cross-beams with the walls are carved stone corbels. The panelling on walls and bookcases of library is in Austrian oak, with ceilings crossed by beams of Kauri pine. A feature of this room is the recessed fireplace, with its fine arched stone entrance forming an alcove, as in the dining-room, a view of which is reproduced here. Carved out on the frieze in relief in two lines finished off with scroll designs are the words:—

"Tak tent o' time
Ere time be tint."

The drawing-room has a low dado of rosewood, left in its natural state without polish of any kind. Above, the walls are painted a grey tone, with frieze and ceiling decorated in soft white. The ceiling in this apartment is also formed into panels with beams of Kauri pine, and has ornamental plaster supports at junctions of cross-beams with walls.

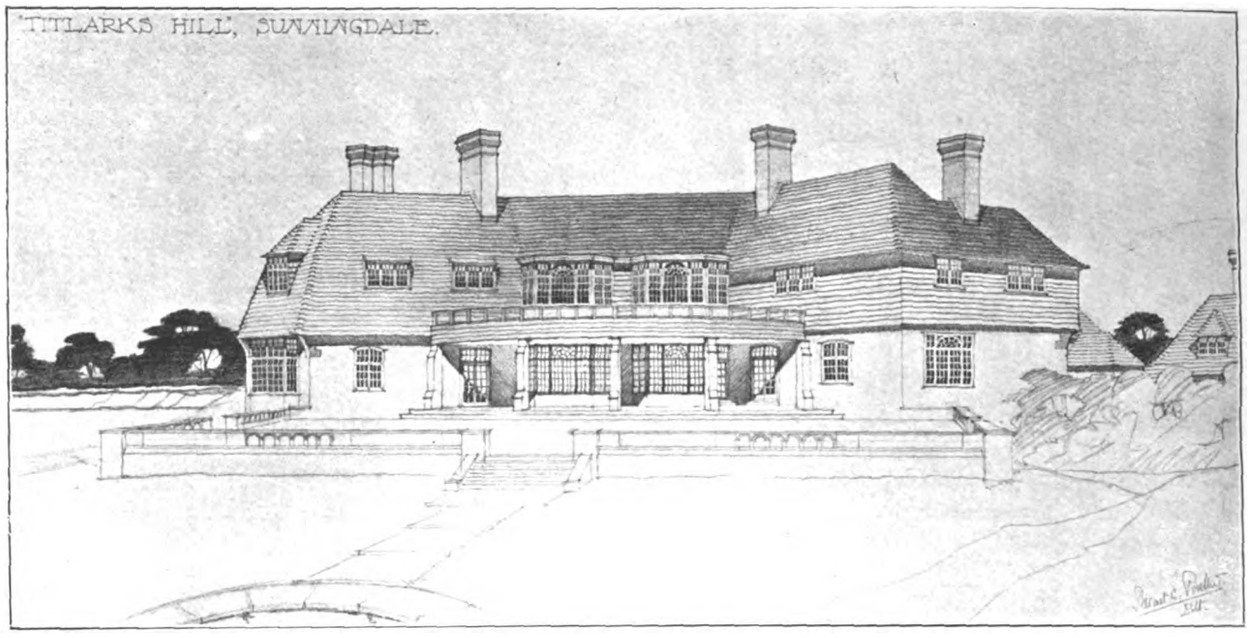
The carved subjects on the stone corbels have been varied as far as possible to accord with the characteristics of each apartment. For example, in the hall night and morning are depicted by the owl and the crowing cock respectively. Other rooms have quaint human figures, such as the jester or clown, &c. The dining-room has studies pertaining to the pleasures of the table, including a deer, wild duck, and fish. In the library the subjects relate to literature and music. The drawing-room has the four seasons symbolised by human heads surrounded by suitable foliage—childhood representing spring; youth, summer; maturity, autumn; and old age, by winter. Here no wooden joists are visible; instead, the corbels support enriched plaster beams.

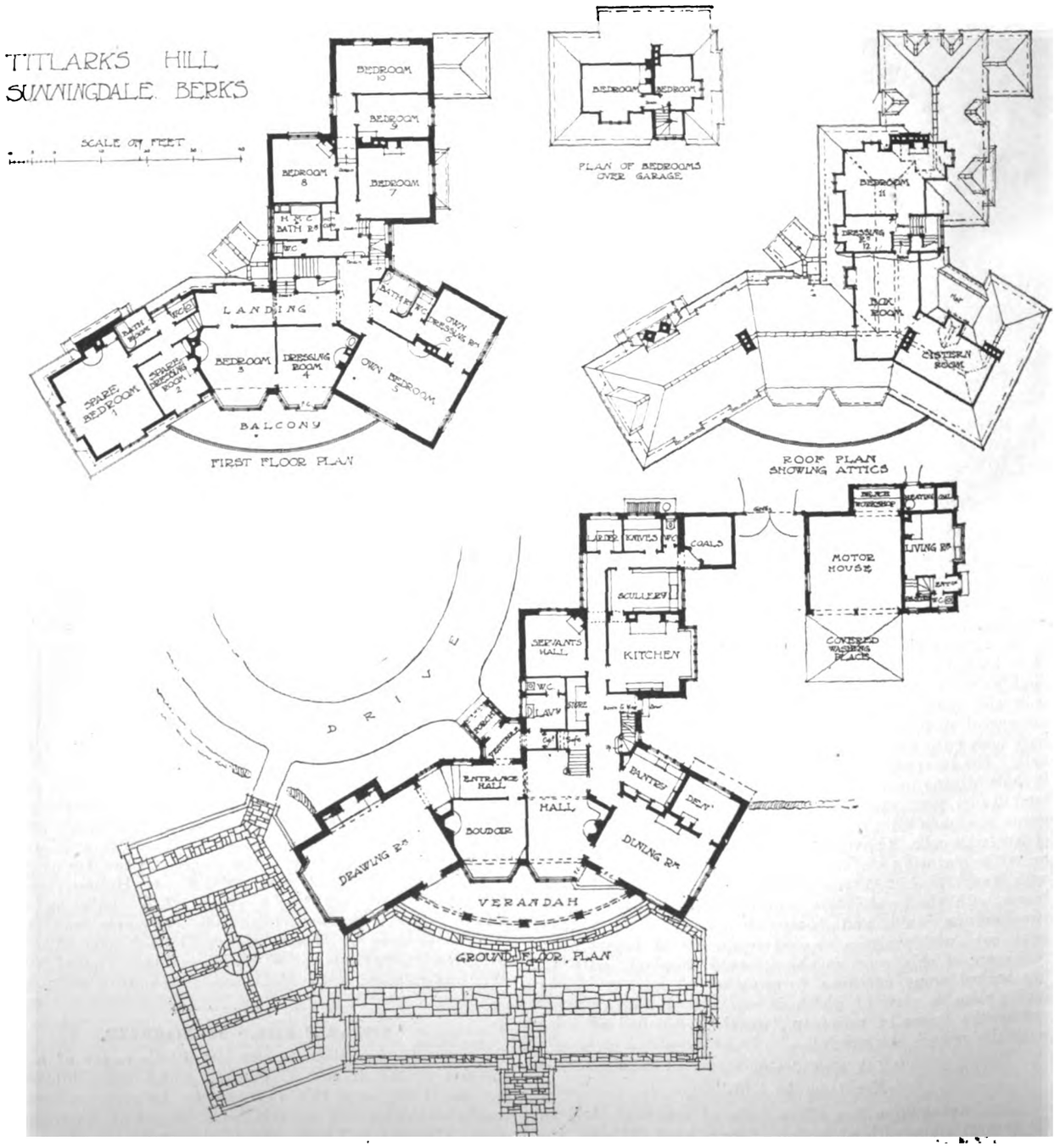
Messrs. P. & W. Anderson, Ltd., of Glasgow, were the builders, the owner being a member of the firm. Other Glasgow contractors were Mr. John Cochrane, for joinery work; Messrs. Wm. Anderson, Ltd., plumbing; Messrs. A. & D. McKay, slating; Messrs. Geo. Rome & Co., Ltd., plain plasterwork; Messrs. Osborne & Hunter, electric fittings; Messrs. Guthrie & Wells, Ltd., painting; Mr. James Young, stone-carving. The casements and lattice work were done by Messrs. Henry Hope & Son, Ltd., and Mr. Geo. P. Bankart, of 48 Rathbone Place, Oxford Street, W., was responsible for the ornamental plaster-work.

"TITLARKS HILL," SUNNINGDALE.

The reproduction given in our last week's paper of a perspective by Mr. Briant A. Poulter, which was exhibited at the Royal Academy this year, shows the entrance front of the house which has recently been erected at Sunningdale overlooking the golf links and Chobham Common.

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The principal rooms face south, and are arranged to get as much sun as possible.

Externally the walls of the ground floor are plastered with light brown stucco. The first-floor walls are hung with red sand-faced tiles, and the roofs are covered with mottled grey and brown sand-faced tiles from Messrs. Warner's kilns at Twyford. The chimneys are of 2-inch grey bricks. The windows are iron and with leaded lights by Messrs. Hope & Sons.

Internally the walls are of natural-coloured plaster relieved with enrichments carried out by Mr. G. P. Bankart. The music-room is panelled with old panelling and ceiled with an enriched plaster barrel ceiling. Generally, the woodwork is of oak and deal painted white.

The house is heated throughout by radiators put in by Messrs. Thos. Potterton, of Balham.

The garden is to the architects' design, and the terrace is laid out with grey brick walls and Portland stone paving.

The general contractors are Messrs. Norris & Co., of Sunningdale, and Messrs. Tubbs, Messer & Poulter are the architects.

"CROW CLUMP," WEYBRIDGE.

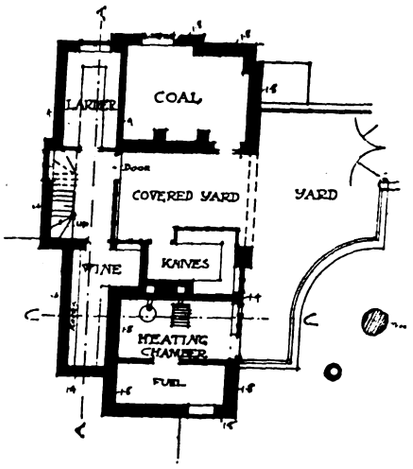
THE two reproductions in our last week's issue of perspective drawings by Mr. Briant A. Poulter which were exhibited at the Royal Academy this year show the garden and entrance fronts of the above house, which has recently been erected on St. George's Hill, Weybridge.

All the principal rooms have splendid views to the south and east, over the golf course towards Guildford and Aldershot. The house is placed on the top of a steep hill, and part of the servants' offices are under the kitchen wing to save space.

Externally the walls are of local grey bricks, and parts are plastered with a fine stucco and timber framed.

The woodwork throughout is of oak, left its natural colour.

The roofs are covered with mottled grey and brown sand-



BASEMENT PLAN.

faced tiles from Messrs. Warner's kilns at Twyford. The windows are iron, with leaded lights.

Internally the walls are of natural coloured plaster with enrichments, and the woodwork throughout is oak, except in the dining room, which is of polished mahogany, and some of the bedrooms were finished in enamel. The drawing-room is panelled with enriched plaster by Mr. G. P. Bankart. The billiard-room is panelled in oak by Messrs. Cleavers.

The house is heated throughout by radiators put in by Messrs. W. L. White, Son & Co., of Birmingham.

The garden is laid out to the architects' design, and the terrace is made of Bargate stone and Portland stone paving.

Mr. W. G. Tarrant, of Byfleet, is the general contractor, and Messrs. Tubbs, Messer & Poulter are the architects.

MR. A. H. BARKER, B.Sc., lecturer in heating and ventilating engineering at University College, will give a lecture on "The Methods of Valuation of Standard Coefficients in Heating Engineering," in the Physiology Theatre at University College, Gower Street, W., on Tuesday, November 23, at 7 P.M. This lecture will be open to the public without ticket, and is especially intended for engineers and others concerned in practical work in heating and ventilating.

THE ARCHITECTURAL ASSOCIATION.

THE annual general meeting of the Architectural Association was held on Monday, November 8, at Tufton Street, S.W., at 6 P.M. Mr. H. Austen Hall, F.R.I.B.A., President, occupied the chair.

The Hon. Secretary, Mr. H. M. Fletcher, M.A., F.R.I.B.A., announced nominations for thirteen ordinary members and the reinstatement of one member.

Mr. H. Austen Hall, before calling upon the lecturer, made a statement with reference to meetings, &c. The Architectural Association had, he pointed out, carried on very successfully the recruiting work which has been its great concern since the war began; they had now recruited over a thousand men for the Army, and there were also four hundred members of the Association serving. They were running a very large committee, under the control of Mrs. Maurice Webb, for providing comforts for all those men, and its work is very much appreciated. But more money and help was always needed, for the committee's work was constantly increasing. The Association propose to follow the example of the Royal Institute, and not hold any further meetings at which papers will be read during the winter. So many members are away, and money was so badly needed for providing comforts, &c. The only meetings to be held will be for transacting business. It was fitting that the present lecture should be of such topical interest. In Dr. Shipley they had secured a man who knew a great deal about his subject. The many members who had joined the R.A.M.C. lent great interest to what he would tell them.

Dr. A. E. Shipley, D.Sc., F.R.S. (Master of Christ's College, Cambridge), then read a paper, of which we give an abstract, dealing with

THE MILITARY HOSPITAL AT CAMBRIDGE.

The First Eastern General Hospital is situated on the King's and Clare Athletic Ground, on one of the best cricket pitches in the University. What were the feelings of the groundsman when he saw the hospital springing like a mushroom out of the earth on his beloved pitch we shall never know, for the groundsman is a patriot and declines to tell. The building, at first designed for 520 beds, was to be completed within four weeks, and thus simplicity of design combined with stability were the factors the architect aimed at. The whole hospital, with more than double this number of beds, was finished and in working order within eight weeks. It has since been enlarged, until it now has over 1,700 beds.

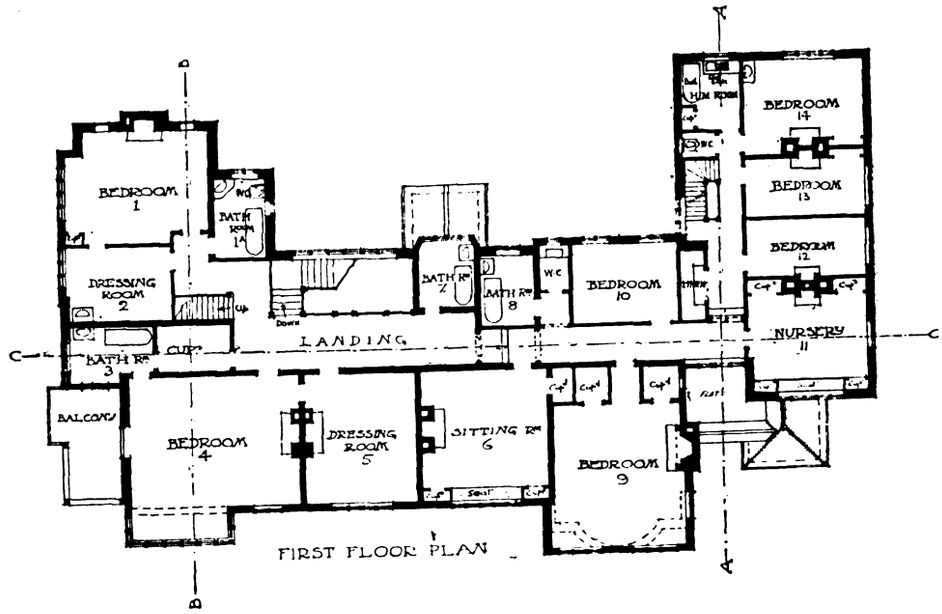
The wards are split up into long blocks of buildings running east and west. Each block faces south and is divided into three portions. Each block is 408 feet long, 21 feet wide, nine feet to the eaves, and 12 feet 9 inches to the ridge of the roof. In each block there is a western and an eastern ward, each with sixty beds, and between them, but quite continuous with them, a central building in which are arranged three bathrooms, lavatories, service rooms fitted with hot and cold water, with sinks, plate-heaters, tea-infusers, &c., two private wards for such cases as cannot be put into open wards, and a room which is heated for the use of the nurses at night. Traversing the central portion are two passages which pierce each block, and at the northern end, end up, as they should end up, in the kitchens. The floor is everywhere on the same level, which results in a great saving of energy.

The buildings consist of a wooden framework, the walls being covered externally with asbestos slabs and resting on brick foundations with a bitumen dampcourse. The asbestos slabs are comparatively thin, but are impervious to weather, their one disadvantage being that they are apt to be broken by a really hard blow. The roof is of wooden boarding covered with Ruberoid, a bituminous weather-proof sheeting of considerable durability and largely fire-resisting.

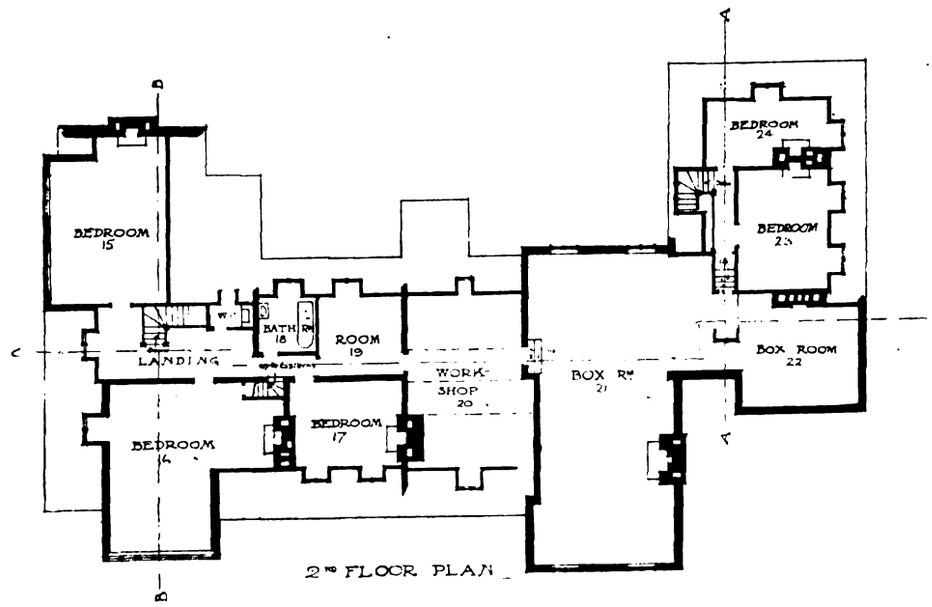
The wards are only enclosed on three sides—the east, west, and north; and even on the north side an opening, protected by louvres, is left close to the roof to ensure a free circulation of air throughout and to prevent any pocketing. On the south side the wards are entirely open to the sun and air, except for a low open railing at the floor level, and ordinary sun-blinds, such as are used for over shop fronts.

Of course, the pleasantest of the wards is the southernmost, for it looks on to green fields and gardens, whereas all the others look upon the back of the ward beyond them. But, thanks to the energy of the matron, there are now gay flower-beds between each row.

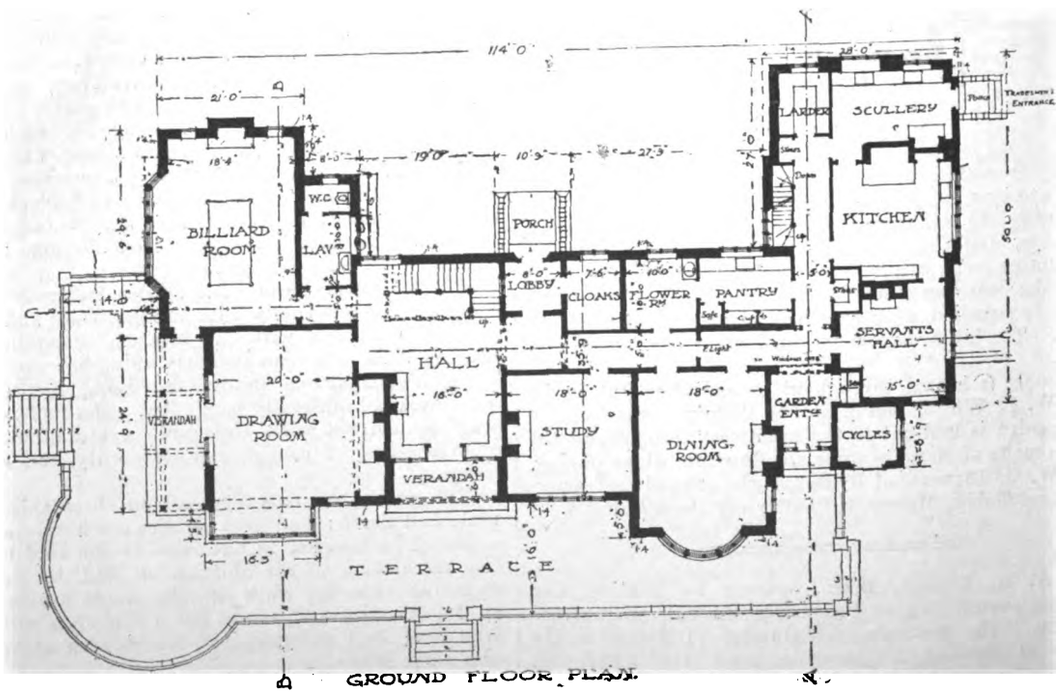
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FIRST FLOOR PLAN



2ND FLOOR PLAN



GROUND FLOOR PLAN.

"CROW CLUMP," WEYBRIDGE.—Messrs. Tubbs, Messer & Poulter, Architects.

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There are, of course, many other buildings not necessarily open to the air. One range, 280 feet long, contains the pathological laboratory, a room for electric massage, the officers' messroom, the receiving room, rooms for the officer commanding, for the matron, for the dentist, rooms for electrical treatment, rooms for the registrar, linen rooms, storerooms of every kind, and rooms for the Cambridge University O.T.C.

Behind these, on the eastern side, is another block in which the kit of each man as he arrives is carefully disinfected, cleaned, tied up together, numbered, and placed in a pigeon-hole ready for his discharge. There is also a recreation room, 101 feet in length, containing a little theatre with scenery, where lectures, plays, and music are given. This is used, too, as a reading, writing, and dining room. There is a long building devoted to the sergeants and orderlies which has a capital dining-room, billiard-room, recreation-room, sleeping quarters, and baths for thirty-two non-commissioned officers. Another block has sleeping accommodation in cubicles for the orderlies, with bathrooms and other conveniences.

The kitchen block of buildings in cross-section has the same height, &c., as the wards. It is a marvel of ingenuity; the whole of the cooking is done by gas, and very well done too. There is a large scullery, also storerooms of all kinds, and a private room for the cooks. The kitchen is practically devoid of any smell of cooking, as it is ventilated by means of open slits on the north and south walls and by a central louvre in the roof. So efficient is the organisation that the whole of the patients can be fed within sixty minutes.

The apparatus for the central heating and hot-water supply has been divided into sections, with duplicate boilers to each section coupled up to calorifers. As the runs of pipes are so extensive, to increase the velocity of the circulation of the hot water, so that hot water might be drawn off at any point, centrifugal acceleration was provided, coupled up to high-speed motors. The installation was put in by Messrs. F. A. Norris & Co., 11 and 12 St. Andrew's Hill, E.C.

The scheme of this hospital and its plan were carefully thought out many years ago by Dr. Joseph Griffiths, to whom the success of the institution is largely due. He has been ably seconded by the readily rendered aid of the numerous specialists and experts which a university town like Cambridge can always rely on. The whole of the buildings were designed and carried out under the superintendance of Mr. C. F. Skipper, architect to the Cambridgeshire and Isle of Ely Territorial Force Association. The hospital was erected by Messrs. A. Negus & Son, of Cambridge, at a cost of £16 17*s.* 6*d.* per bed.

The results obtained by this open-air hospital have been fully recognised by the authorities. At first but 520 beds were sanctioned, and these literally sprang out of the ground in four weeks. But immediately the good work was realised the authorities sanctioned another 520, then a third instalment of 200. Next the beds were put closer together. At present the hospital can put up 1,700 wounded. As a rule, on being discharged from an ordinary hospital a soldier wants two or three weeks of convalescence in some "home." Many men go straight from Cambridge to their friends without needing this middle period of convalescence.

Discussion.

Mr. Edwin T. Hall, F.R.I.B.A., in proposing a vote of thanks, said Dr. Shipley had given them a fascinating paper on a subject which was, of course, of the greatest moment at the present time. As an architectural body they were presumed to take more interest in the structural than in the social or medical side. But all these aspects were very much interwoven. Treatment in the open air was greatly increasing in favour. His friend Dr. Boobyer, of Nottingham, had been treating all sorts of cases in the open air for many years past, and obtaining wonderful results. The more open air one had the healthier one was. That fact largely accounted for the splendid condition of our men at the Front, and their wonderful cheerfulness. It was, of course, right that as professional men they should say how much they appreciated the medical conduct of this war. The deaths from disease were an almost negligible quantity on the Western Front. Unfortunately things were worse in the Near East. With regard to the Military Hospital at Cambridge, he might remark that the wards were practically open-air shelters. Permanent hospitals, especially in towns, could not be built of wood, because of the great risk from fire. And it was not possible to make use of the Cambridge £20 a bed for purpose of comparison. It is possible hospitals may in the future be built outside towns of similar materials to those at Cambridge. Asbestos was a most pleasing covering or filling both inside and out for a ward. The objection to galvanised iron for roofing was the great noise rain and especially hail made on it. The low cost of the Cambridge Hospital was a great credit to those who had built it. Here the men live under the best circumstances, getting from the fresh air what they can get nowhere else.

Dr. Brydon, Medical Officer of the Architectural Association First Aid Detachment, said the Cambridge Military Hospital marked the beginning of a new epoch in the history of medicine. Dr. Shipley and Dr. Griffiths had achieved their ideal, and soon had a success. The comfortable days of the past in the handling of disease were over. Everybody in fifteen or twenty years will be treated on the cave-dwellers' plan. It was possible to give the open-air treatment in London, but it is inseparable there from a good deal of dirt in the atmosphere. The system was an ideal one. But fresh air was disappointing as a curative agency for wounds.

Mr. W. A. Pite, F.R.I.B.A., said the scheme was carried out in much the same way at the sanatoria camp at Colorado Springs. The principal lesson to be learnt from this hospital is the enormous importance of fresh air and of sunlight.

Dr. Meller remarked that the lessons of the efficacy of fresh air would be conveyed by the patients to their own homes, and so general good would result.

The vote of thanks was then passed by acclamation. Dr. Shipley having replied, the meeting terminated.

MEDALS OF THE RENAISSANCE.

Under the auspices of the Society of Antiquaries in Scotland, the first Rhind Lecture of the present series was delivered on the 26th ult., in the Royal Arch Hall, Queen Street, Edinburgh, by Mr. G. F. Hill, Keeper of Coins and Medals in the British Museum. There was a good attendance of members of the Society and of the public. The subject of the course is "The Medals of the Renaissance," and in the first lecture Mr. Hill dealt with

Italian Medals—The Beginnings. The Early Renaissance.

The following reports appeared in the "Scotsman."

Mr. Hill said the understanding of the Renaissance medal lies in the fact that it commemorates persons rather than events; the medals are personal documents. The rise of this art in Italy in the fifteenth century is very largely explained by the intense and unprecedented development of the power of expression of individuality, whether for good or evil, which the Italians knew as virtù. The Renaissance is distinguished by this vigour of self-expression from most other periods, not because it was wickeder or better, but because it was less inarticulate. The re-discovery of antiquity assisted in this development, and ancient coins, which were found in such numbers, were valued chiefly because they gave portraits of the great men of antiquity. The ethical interest throughout dominated early collectors. The earliest anticipations of the Renaissance medal are small portraits of Francesco I. and II. of Carrara, commemorating the recovery of Padua in 1390, on which the portraits are closely imitated from Roman coins; and a series of Burgundian or Flemish jewellers' medals of certain champions of Christendom, made at the end of the fourteenth century, of which those representing the Emperors Constantine and Heraclius have come down to us in copies.

The influence of the Roman Imperial medallions, bearing official portraits of the Emperors, made itself felt, as appears from the general resemblance to such pieces which is borne by the first true Renaissance medal, made by Pisanello at Ferrara in 1438, representing the Byzantine Emperor John VIII. Palaeologus. From 1438 to 1449 Pisanello produced a rapid succession of medals of some of the most famous men of his time. The reverses of many of his medals bear the private devices or *imprese* of the persons concerned, devices often purposely obscure and riddling, in accordance with the fashion of the time. Pisanello ranks beyond dispute as the greatest of all medallists in nobility of conception and beauty of composition. In him we see the painter—for he was distinguished as a painter of portraits and of animals before he made medals—working in a new plastic medium with complete mastery of the new conditions—a phenomenon

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rare if not unexampled in the history of art. He left no school, properly speaking, though his influence dominated most other medallists during the next generation.

The man who shows Pisanello's influence most markedly was Matteo de Pasti, of Verona, who worked more especially at Rimini. His medals of Sigismondo Malatesta and his lady Isotta degli Atti, are among the most characteristic products of the art. As architect he worked at Rimini, for the great architect and man of science, Læone Battista Alberti, and has left us a medal of him. But the finest portraits of Alberti are those made probably by himself, in a style which betrays the sculptor experimenting in medallic work. These may be even earlier than Pisanello's first medal.

LECTURE II.—MEDALS OF THE MANTUAN, VENETIAN, VERONA, MILAN, AND ROME SCHOOLS.

It is usual, he said, to regard Pietro da Milano and Francesco Laurana as continuing the tradition of Pisanello at Naples; but though as sculptors they worked at Naples, their medallic work was chiefly done in Provence for René of Anjou. Pietro's work is ugly and rough; a portrait of our Margaret of Anjou, made between 1461 and 1463, is characteristic. Laurana is a better artist; his portrait of Ferry of Lorraine, in the Hunterian Museum, is perhaps his best medal. Naples itself plays small part in the medallic history of the time. Mantua, on the other hand, boasted a distinct and very charming school of medallists. An anonymous medal of Julia Astallia is one of the most lovely products of the art. She is identified with the heroine of one of Bandello's novels, who, having been outraged by a servant of the Bishop of Mantua, drowned herself in despair, and was commemorated as a model of chastity and fortitude. It is close in style to the work of the artist known as L'Antico (died 1528), famous for his statuettes and plaquettes, which show the influence of the antique inspiring, but not too hopelessly dominating the fresh spirit of the quattrocento. His contemporary, Giancristoforo Romano (died 1512), was a favourite artist of Isabella d'Este, Marchioness of Mantua, of whom he has left a pretty portrait. To him, without much reason, have also been attributed some very delightful medals with a reverse design of a captive Cupid. These show the art of the Italian medal in its quintessence, although they are not necessarily among its greatest products; but they have its good qualities and its charm in a concentrated and unique form. A remarkable portrait of Lucrezia Borgia is associated with this group.

Among the most popular of Italian medallists of the quattrocento was Sperandio of Mantua, who worked mainly at Ferrara, Bologna, and Venice, from 1466 to 1504. Goethe, indeed, placed him above Pisanello—a singular lapse of judgment, as it seems to us, since this artist's immense vigour hardly atones for his wretched execution, vulgarity of conception, and lack of originality in design. Yet he must have been popular in Italy, too, to judge by the number of commissions he received; but this merely illustrates the fact that the Italians themselves seem to have too often mistaken rant for eloquence and brutality for strength.

The first Venetian medallist of whose work anything like a series has come down is Marco Guidizani, who shows a vigorous, almost monumental, feeling, but a clumsy and primitive execution. He portrayed the famous warrior Colleoni, as well as the Doge Pasquale Malipieri. Gentile Bellini cast an indifferent medal of the Sultan Mohammed II., whom, as is well known, he visited in 1479. The transition from the primitive to the fully developed style is given by the accomplished artist Gambello, to whom we owe beautiful portraits of the Brothers Bellini, as well as certain struck medals which show considerable mastery of the new technique. Perhaps the most pleasing artist of the Venetian school, taken in its broad sense, is the Friar Antonio of Brescia, who worked from about 1487 to 1513, whose homely and realistic, but finely executed portraits have been justly compared with the paintings by Giambattista Moroni of Bergamo. He is followed by a Venetian, probably Maffeo Olivieri, who made, for the most part about the year 1523, a series of very fine and spirited portraits of distinguished Venetians. At Verona in the sixteenth century we find a most attractive artist, Giulio della Torre, making portraits, chiefly of members of his own family. He was a lawyer by profession, and his work is that of an amateur, but its sincerity and good feeling excuse its occasionally faulty execution.

Caradosso Foppa, of Milan (working from 1470 to 1527), after being employed by the Sforzas, finally settled in Rome in 1505. His portrait coins of the Sforzas are among the most brilliant works of art of their kind, certainly the finest produced since antiquity. Among the cast medals are one of Bramante, and one of Julius II. showing Bramante's design for St. Peter's. These medals mark the beginning of the modern medal. Caradosso influenced Cellini probably more than Cellini cared to acknowledge, and, through Cellini, the whole subsequent course of medallic art. The Roman school before Caradosso had consisted of important artists. There were the Canon of Prato, Andrea Guaccialotti, who worked for Nicholas V., Calixtus III., and Pius II., and his contemporary, Cristoforo di Geremia. Cristoforo is perhaps represented in a beautiful portrait by Botticelli in the Uffizi, holding a medal of Cosimo de' Medici the Elder, which he may have made. He is one of the most powerful portraitists of his time. And one of the most charming of all medallists is Cristoforo's nephew, known as "Lysippus the Younger." His masterpiece is a medal of himself, the reverse of which seems to have been polished as a mirror. The inscription on it may be rendered—

"This side the likeness of your slave displays;
Turn me, your own fair face will meet your gaze."

Without being a great artist, he is absolutely sincere and fresh, and an admirable master of lettering. He was succeeded by a Neapolitan, Giovanni Candida, who worked about 1479-1504. As a diplomatic agent he visited Flanders and France, and carried to Flanders and France the influence of Italian art.

(To be continued.)

ARBITRATION CONCERNING SPITALFIELDS MARKET RIGHTS.

MR. C. A. RUSSELL, K.C., as arbitrator, has issued his award in the claim by Mr. Robert Horner for leasehold and other interests in Spitalfields Market, which has been compulsorily acquired by the City of London Corporation under Parliamentary powers. The arbitrator has awarded £284,500 for the undertaking and property comprised in the notice to treat, dated January 27, 1903. Mr. Horner's claim amounted to £600,000. At the arbitration the valuation of surveyors called on his behalf approached half a million sterling, while the valuation of Sir Alexander Stenning and others who gave evidence on behalf of the City Corporation was less than £200,000. Mr. Horner also claimed £50,000 for outside properties, but during the arbitration, as a result of negotiation, the City solicitor (Sir Homewood Crawford) and Mr. Horner's solicitor (Mr. Betteley) agreed upon a price of £32,000.

Mr. Horner has for many years drawn a princely income from Spitalfields Market, which possesses valuable franchise rights conceded in the reign of Charles II. When quite a youth he started in humble employment at the shop of one of the traders there, and soon he saved sufficient to start in business for himself. Keen, alert, and industrious, it was not long before he was able to take a lease of the market from the owner, Mr. Goldsmidt, who subsequently sold his freehold rights to the City Corporation for £177,000. Perceiving the immense possibilities of the market, Mr. Horner agreed to spend large sums upon its improvement, and he effected a transformation with such sagacity that the market soon obtained a considerable reputation.

MR. THOMAS JOHN THOMPSON, senior member of John Thompson & Co., of Peterborough, the church builders and restorers, who died in August last, has left estate valued at £10,697.

THE Royal Institute of Architects of Ireland held an ordinary meeting of the Council at the Institute rooms, 31 South Frederick Street, Dublin, last week. Owing to the unavoidable absence of the President, Mr. W. Kaye-Parry took the chair, and subsequently Mr. A. E. Murray. A report of the Ancient Buildings Committee was received and adopted, and ordered to be printed. A letter from the Engineering and Scientific Association intimated that any members of the Institute will be welcome to attend their sessional meetings. A house list for the ensuing year was compiled, accounts were passed for payment, and a good deal of correspondence was dealt with.

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SELECTION COMMITTEE
OF THE
ARCHITECTS' WAR COMMITTEE.

Information Regarding the War Service Form overleaf.

Please read this and the back page carefully before filling in the form overleaf.

1. This form may be filled in by Architects, Architects' Assistants and other professional men who have a practical knowledge of building and matters allied thereto detailed under the head of "Professional Experience" on page 3.

2. An applicant returning this form filled in thereby undertakes to accept at the request of the War Committee or other Authority, at very short notice from the date as stated at which his services are available, any service which he has indicated as acceptable therein, unless he has previously withdrawn his name in writing.

3. As the distinction between home and foreign service is practically in abeyance during the War, no application limited to home service can be accepted. Obviously, however, considerations of age, medical fitness, and the nature of the service will preclude foreign service in a large number of cases.

4. The applicant must be prepared to present himself at his own expense at the Centre at which he prefers to be interviewed with a view to selection for appointment. A list of these Centres appears on page 4.

5. **No offers of anything but whole-time service without restriction as to locality can be considered.**

6. Those who have been invited to enlist under Lord Derby's scheme should do so and still fill in and return this form.

7. **This form is intended to cancel and supersede all previous applications which have been made to the Selection Committee (it has nothing to do with applications to other Committees, made for work or assistance owing to reduced circumstances). Those already on the Selection Committee lists are particularly requested to fill in and return the form. Applications are also invited from ARCHITECTS who have already enlisted in the Navy and Army.**

8. Any applicant obtaining an appointment, Naval, Military or Civil, will receive the ordinary pay attached thereto fixed by the War Office or other Authority making the appointment.

9. The Committee intends to bring the classified lists of suitable applicants before the Authorities, Naval, Military or Civil, either central or local, concerned with appointments, but no appointments actually rest with the Committee, which therefore cannot undertake that any appointments will be made.

10. The sending in of this form constitutes an undertaking by the applicant to accept the decision of the War Committee or its duly appointed representatives as to whether the applicant is recommended for any service or placed on any list.

11. The particulars given by the applicant will only be used with a view to recommendation for some appointment.

12. **Any applicant obtaining an appointment hereby undertakes to notify the Secretary of the Selection Committee immediately.**

13. Applicants are advised to make and keep copies of their forms to meet the event of correspondence arising, as the forms will be retained by the War Committee.

14. This form, filled in and SIGNED, must be **returned to the Centre** (see p. 4) **at which the applicant prefers to be interviewed,** marked "W.S. Form" on the top left-hand corner of the envelope and addressed to the Secretary at that Centre, together with any correspondence until the applicant is informed that he has been placed on a selected list, when further correspondence should be addressed to the London Centre.

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ARCHITECTS' WAR SERVICE FORM.

Read the front and back pages before filling in. Please write clearly and in the spaces provided for answers to each question.

NOTE.—Do not leave blanks but put "Yes" or "A little" or "No" where such answers apply; or if you are actually about to acquire proficiency in anything which is the subject of interrogation and can offer this at the date of the offer of service (see next page) state "A little, February, yes," or "A little, May, yes," as the case may be.

This space is reserved for the Report of the Committee of the Centre selected by the Applicant.

Give Code No. on National Registration Card

Classification under Lord Derby's Scheme (if any)

Surname (in capital letters)

Christian name(s)

Societies' Name or Stamp

Permanent address—Residence

Town County

Temporary address

for correspondence till (date)

Provincial Architectural Society of which you are a member (if any)

Other Professional or Learned Society ,, ,, ,,

Interviewed 191

Age Height Chest measurement

Particulars given

General health (state as Fair, Good, or Excellent)

Have you any physical defects? If so, give details

What dependants have you? Number of adults Children Ages
(count partial dependants as ½)

Rec.

What was your School? College

Ra.

What are your diplomas or degrees?

Can you ride a horse?

Undertake animal management?

Rec.

Ride a motor bicycle? } Do motor
Drive a car? } repairs

Ra.

Do metal turning?

Do any other skilled handicraft? (state nature of)

Rec.

Do simple electric work?

Ra.

Do military signalling?

Use a prismatic compass? Level? Other surveying instrument?

Remarks

Make and plot an ordinary chain survey?

Speak foreign languages? (state which, and whether Slightly, or Fluently, or Technically)

Manage workmen? Give number controlled and for how long

Give "first aid"?

Do you understand boats?

Are you or have you been engaged in any War Service?
(If so, state whether Regular, Territorial, Voluntary or Civil)

What was the date of your enlistment or appointment on joining?

,, ,, retirement or discharge (if effected)?

What is (or was) your rank or position?

State particulars of military certificate?

Signed

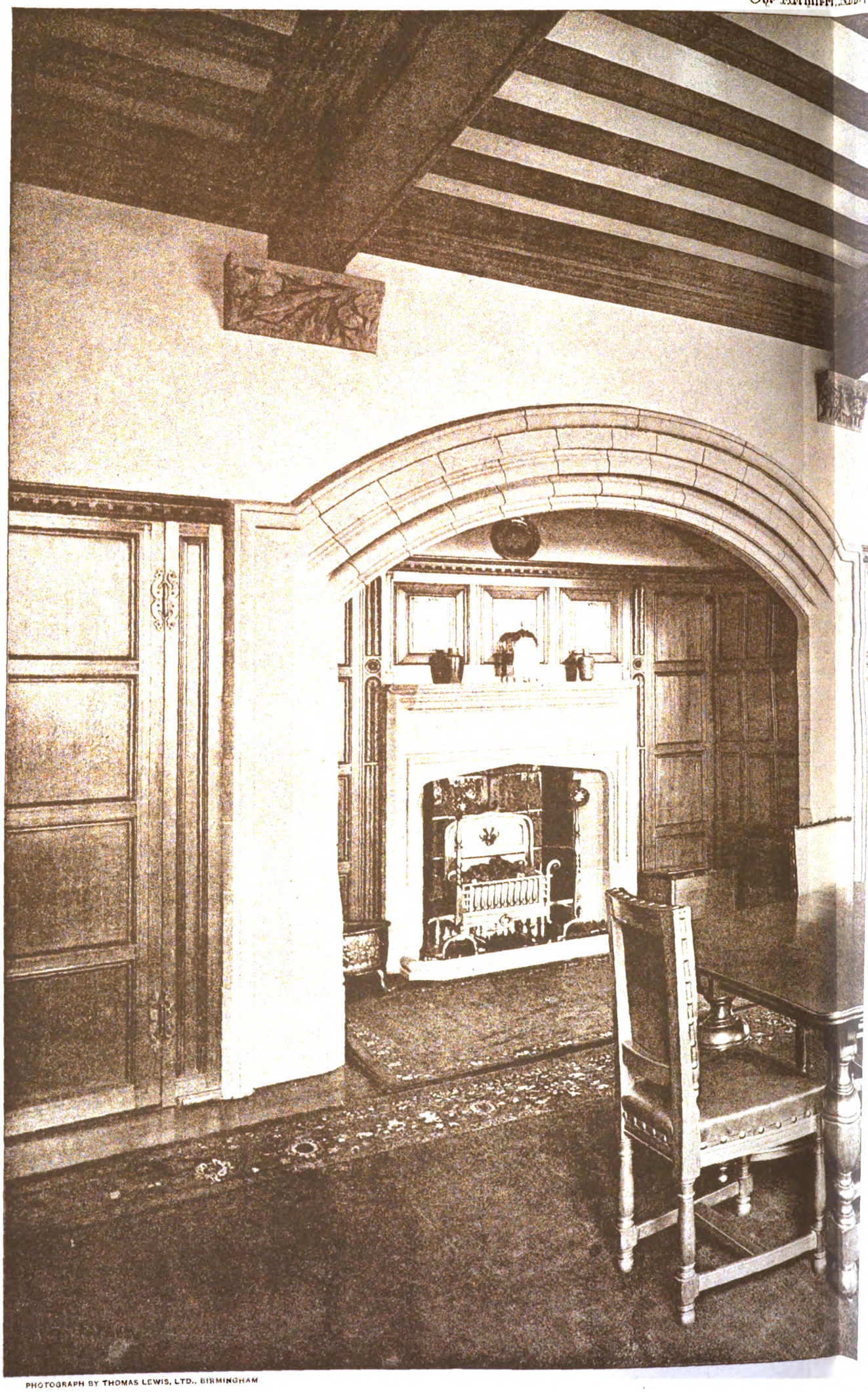
Special qualification (if any)

Dated

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PHOTOGRAPH BY THOMAS LEWIS, LTD., BIRMINGHAM

"BENEFFREY," POLLOKSHIELDS. G

MR. WM HUNTER McNAB F.

(Royal Scottish Academy, 1915.)

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INK-PHOTO. SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

GLASGOW: DINING ROOM.

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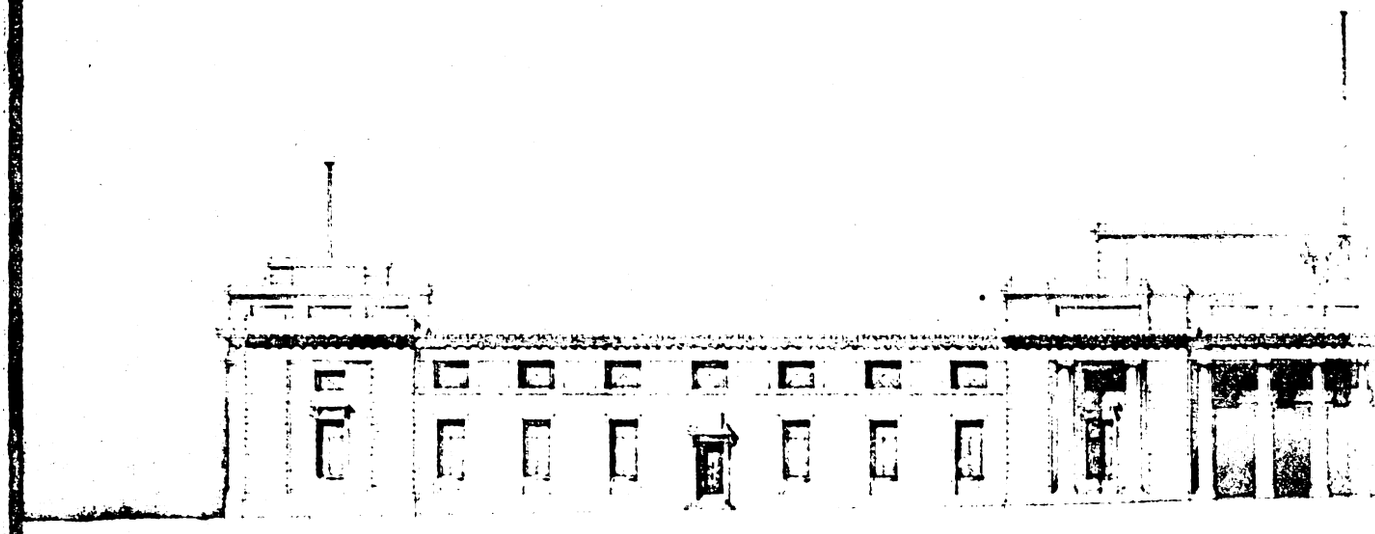
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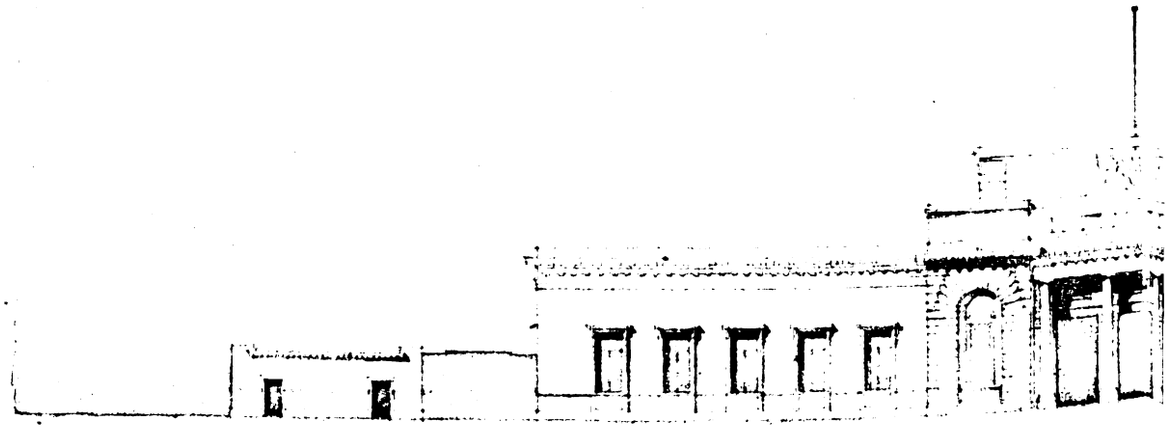
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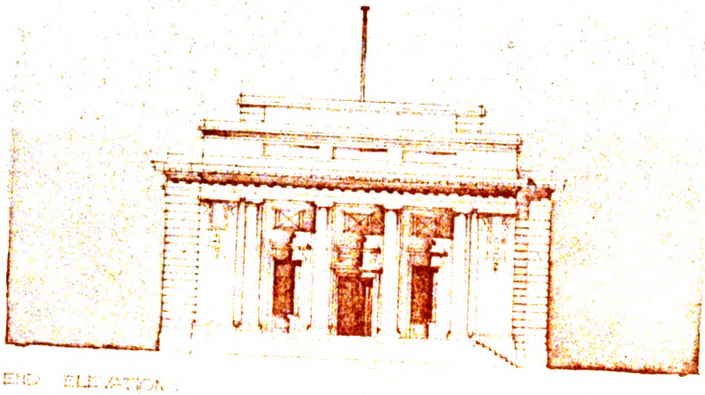
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MR. WM. HUNTER McNAB

(Royal Scottish Academy, 1915.)

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ASGOW: VIEW FROM SOUTH-EAST

B, F.R.I.B.A., Architect

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DETAILS OF PROFESSIONAL EXPERIENCE

Put a cross in the spaces under headings in which you have had most experience, and a circle to those in which you possess less, but some proficiency.

	As Principal	As Draughtsman	As Clerk of Works or Outdoor Supervisor
General Practice			
Business Premises			
Factories and Workshops			
Hospitals			
Schools			
Temporary Buildings			
Bridge Work			
Sanitary Work			
Municipal Engineering			
Civil Engineering			
Dilapidations			
Valuations			
Structural Steel Work			
Ferro-concrete			
Road Making			
Land Surveying			
Other Work, not included above, namely			

Put a cross in red ink in the space or spaces below applying to any service you would preferably undertake, and a circle in red ink in spaces for any second preference, your application being for junior commissioned rank or position as supervisor. Put a cross in black ink and a circle in black ink to indicate your first and second preferences respectively for any service in which you would enlist as a private or workman.

PRESENT OR FUTURE SERVICE YOU WOULD UNDERTAKE.

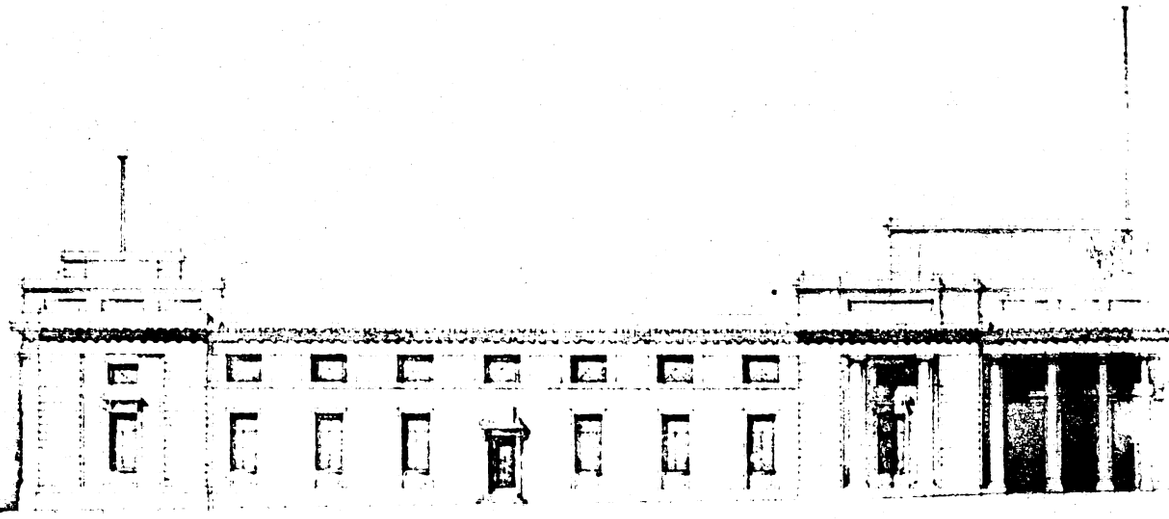
	At Short Notice after Nov. 30, 1915	At Short Notice after Feb. 28, 1916	At Short Notice after May 31, 1916	At the Date offered under Lord Derby's Scheme.
Engineers, Naval Division				
Royal Naval Reserve				
R.N. Air and Anti-aircraft				
Royal Engineers:				
Fortress (Territorial)...				
Mining Battalions				
Navvy Battalions				
Royal Artillery Machine Gun Corps ...				
Infantry				
Pioneer Battalions				
Equipment Section Flying Corps ...				
Army Service Corps				
Mechanical Transport				
Army Ordnance Corps				
Ordnance Department				
Royal Army Medical Corps				
Army Pay Corps				
Sanitary Companies				
Military (not necessarily in uniform):				
Inspector of Works				
Surveyors (Billets, Dilapidations, Valuations)				
CIVIL EMPLOYMENT FOR MEN INELIGIBLE FOR MILITARY SERVICE.				
Practical Draughtsman				
Hutting and Sanitary Work				
Inspector of Stores, Works & Factories				
Munition Supervisor or Workman ...				
Inspector of Stores, Works & Factories				

Signed by the applicant this *day of* 191

Signature

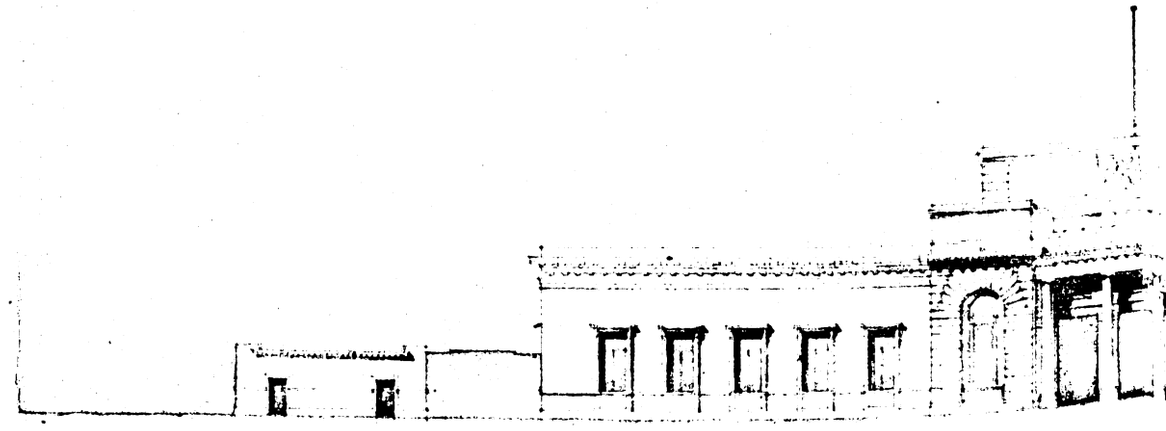
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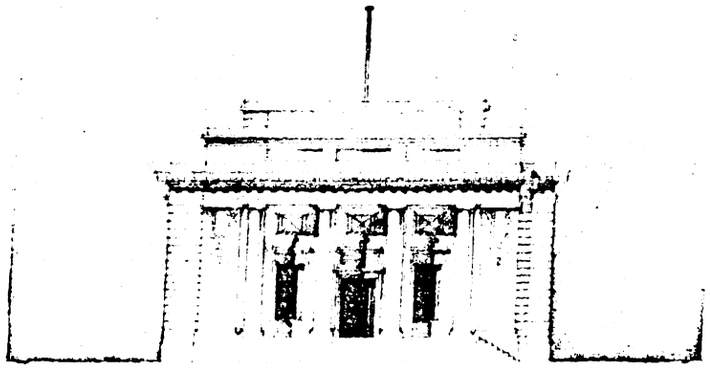
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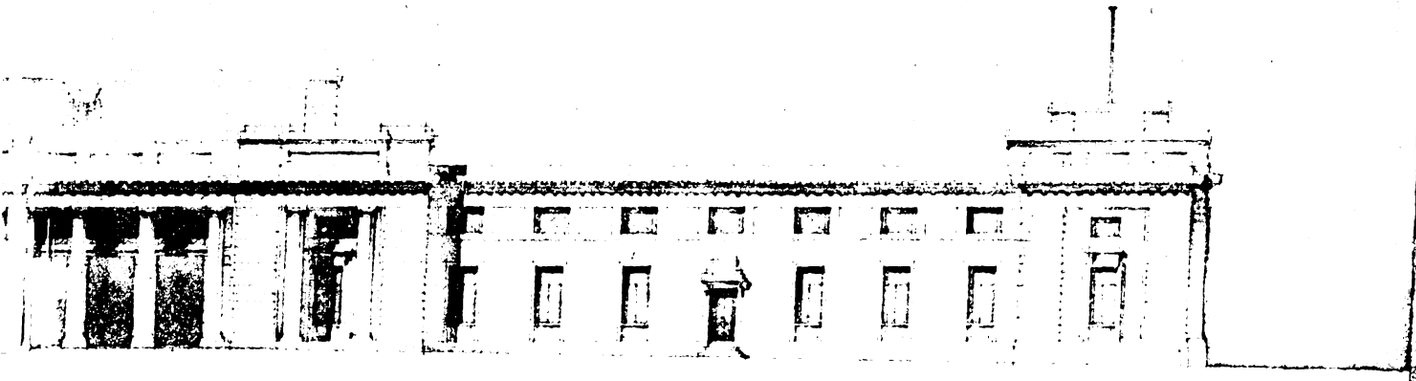
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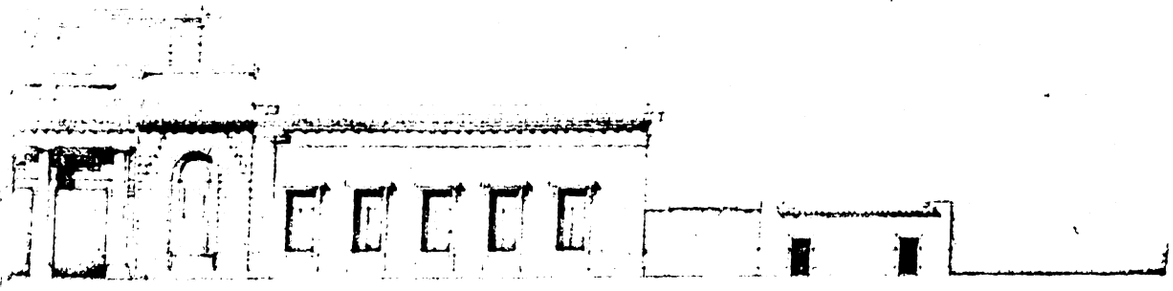
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GENERAL INFORMATION RELATING TO WAR SERVICE.

The technical training of Architects and their experience in organisation is useful in all technical branches of the Service, such as Royal Engineers, Fortress Engineers, Pioneer Battalions, Mining Battalions, Navvy Battalions, Inspectors of Works, Mechanical Transport, Army Service Corps, Army Ordnance Corps, etc.

Particularly useful are expert knowledge of surveying, map reading, use of the prismatic compass, sketching and knowledge of ground and earth and water works, road making and repairs, timbering, scaffolding, and rough temporary works of all descriptions. Knowledge of routine and ordinary practice, particularly domestic and school work, is only useful so far as knowledge of construction is concerned

Knowledge of all country pursuits is also useful, such as shooting, boating, riding; of forestry, dealing with rough timber and underwoods; of land drainage; of rough constructions of ironwork; and of horses, cattle and meat.

For Inspectors of Works or Factories special knowledge of the process of manufacture of iron, steel, canvas, paint, textile fabrics, all kinds of food, and of methods of conversion of all raw material into the necessaries of life or means of destruction by explosion or fire is also wanted.

In rendering War Service under present conditions men cannot expect to receive pay of a greater amount than would provide for the bare maintenance of the families of members of the Professional classes, and it is unlikely that any appointments will be made at higher rates of pay for junior commissioned ranks than from 7/- to 14/- a day, with certain additional allowances, except in very rare instances, and in them exceptional knowledge and qualifications will be necessary.

The standard rates of pay for N.C.O.s and Privates and a general idea of the duties in every branch of the Service can be obtained from any local Recruiting Office or Labour Exchange, and applicants are advised in all cases to make inquiries concerning the branch of service preferred before filling up the form.

CENTRES FOR RETURN OF FORMS AND INTERVIEWS

(*See Page* 1, *Clause* 14).

LONDON.—The Hon. Secretary, War Selection Committee, Royal Institute of British Architects, 9 Conduit Street, Regent Street, W.

ABERDEEN.—Robt. G. Wilson, Esq., Hon. Secretary, The Aberdeen Society of Architects, 875 Union Street, Aberdeen.

BELFAST.—The Hon. Secretary, The Ulster Society of Architects, 9 Howard Street, Belfast.

BIRMINGHAM.—E. Marston Rudland, Esq., Secretary, The Birmingham Architectural Association, 14 Temple Street, Birmingham.

BRISTOL.—A. B. Botterill, Esq., Hon. Secretary, The Bristol Society of Architects, Gaunt House, Orchard Street, Bristol.

CARDIFF.—The Hon. Secretary, The South Wales Institute of Architects, 1 St. John's Square, Cardiff.

DUBLIN.—The Hon. Secretary, The Royal Institute of the Architects of Ireland, 81 South Frederick Street, Dublin.

DUNDEE.—William Salmond, Esq., Hon. Secretary, The Dundee Institute of Architects, 6 High Street, Dundee.

EDINBURGH.—John Wilson, Esq., 125 George Street, Edinburgh.

EXETER.—Allan J. Pinn, Esq., Hon. Secretary, The Devon and Exeter Architectural Society, 5 Bedford Circus, Exeter.

GLASGOW.—C. I. MacLean, Esq., Secretary, The Glasgow Institute of Architects, 115 St. Vincent Street, Glasgow.

LEEDS.—The Hon. Secretary, The Leeds and West Yorkshire Architectural Society, 34 Prudential Buildings, Leeds.

LEICESTER.—Clement Stretton, Esq., Hon. Secretary, The Leicester and Leicestershire Society of Architects, 4 Grey Friars, Leicester.

LIVERPOOL.—The Hon. Secretary, War Committee, The Liverpool Architectural Society, 13 Harrington Street, Liverpool.

MANCHESTER.—The Hon. Secretary, The Manchester Society ot Architects, Mansfield Chambers, 17 St. Ann's Square, Manchester.

NEWCASTLE.—The Hon. Secretary, The Northern Architectural Association, 6 Higham Place, Newcastle-upon-Tyne.

NORTHAMPTON.—Herbert Norman, Esq., Hon. Secretary, The Northamptonshire Association of Architects, 50 St. Giles Street, Northampton.

NOTTINGHAM.—F. M. Royle, Esq., Secretary, The Nottingham and Derby Architectural Society, Milton Chambers, Milton Street, Nottingham.

SHEFFIELD.—J. R. Wigfull, Esq., Hon. Secretary, The Sheffield, South Yorkshire and District Society of Architects and Surveyors, 14 Parade Chambers, Sheffield.

SOUTHAMPTON.—The Hon. Secretary, The Hampshire and Isle of Wight Association of Architects, 45 Jewry Street, Winchester.

YORK.—A. B. Burleigh, Esq., President, The York and East Yorkshire Architectural Society, 69 The Mount, York.

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EGYPTIAN JEWELLERY.*

THE twelfth Dynasty is recognised as the great period of jewellery in Egypt. This has been emphasised by the jewellery of a princess found by the British School at Lahun, which is in some respects finer than any yet known. The group belonged to different reigns; that of Senusert III., the father of the princess, and that of Amenemhat III. under whom she lived. The most important objects were a pectoral of each reign, with hawks as supporters of the cartouche; a crown of gold, with rosettes around, and long plumes and streamers of gold; a silver mirror with hawk of gold and obsidian; besides which were bracelets, necklaces, and vases of the known forms. All of the framing is of gold, and the inlays and beads are of turquoise, lazuli, carnelian, and amazonite. The workmanship and detail are of the most minute and perfect quality.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Architects' War Committee.

SIR,—The Architects' War Committee, which was founded at the outbreak of the war, with the object (amongst others) of offering to the Government the expert services of the architectural profession throughout the country, has been profoundly impressed by the letter of his Majesty to the people, and the utterances of the Prime Minister, Lord Kitchener, and the Minister of Munitions upon the need for increased war service by men of all classes.

The Committee has had under consideration for some time the means whereby the profession may still further assist in meeting the needs of the present crisis by a more complete organisation in harmony with the developments which have taken place during the past year.

The Committee feels that the present time, while Lord Derby's great effort in voluntary recruiting is before the country, is an opportune moment for initiating such an organised movement.

It is believed that when the time comes for analysing statistics, architects will be found to have ranked well with other professional men in the extent of their response to the country's call. There must, however, still be many who are able to help and who now appreciate the greater need for war service, and among them a number who are not coming forward through lack of knowledge of the direction in which their special attainments can best be utilised.

The War Committee therefore proposes, through the courtesy of your columns and through its sub-committees and the various architectural societies throughout the country, to bring to the notice of all architects the fact that it welcomes particulars from all those willing to offer war service.

Forms upon which the required information is to be furnished can now be obtained on application to the Central Committee at 9 Conduit Street, London, W., or to any of the architectural societies throughout the country.—We are, Sir, yours, &c.,

ERNEST NEWTON, A.R.A.,

Chairman of the Architects' War Committee;

President of the Royal Institute of British Architects.

Reginald Blomfield, R.A., F.R.I.B.A., Past-President R.I.B.A.; Ernest George, A.R.A., F.R.I.B.A., Past-President R.I.B.A.; Aston Webb, R.A., F.R.I.B.A., Past-President R.I.B.A.; H. Austen Hall, F.R.I.B.A., President of the Architectural Association; E. C. P. Monson, F.R.I.B.A., President of the Society of Architects; Graham C. Awdry, F.R.I.B.A., President of the Bristol Society of Architects; R. Burns Dick, F.R.I.B.A., President of the Northern Architectural Association; Harry Gill, Licentiate R.I.B.A., President of the Nottingham and Derby Architectural Society; J. Alfred Gotch, F.R.I.B.A., Vice-President R.I.B.A., Past-President A.A., President of the Northamptonshire Association of Architects; E. P. Hinde, A.R.I.B.A., President of the Liverpool Architectural Society; Charles Kempson, F.R.I.B.A., President of the Leicester and Leicestershire Society of Architects; A. H. L. Mackinnon, A.R.I.B.A., President of the Aberdeen Society of Architects; T. Forbes Maclennan, A.R.I.B.A., President of the Edinburgh Architectural Association; G. Salway Nicol, A.R.I.B.A., President of the Birmingham Architectural Association; R. Caulfeild Orpen, President of the Royal Institute of the Architects of Ireland; Adam F. Watson, F.R.I.B.A., President of the Sheffield, South Yorkshire, and District Architectural Society; John Watson, F.R.I.B.A., President of the Glasgow Institute of Architects; Walter Cave, F.R.I.B.A., Past-President A.A.; E. Guy Dawber, F.R.I.B.A., Past-President A.A., Hon. Secretary R.I.B.A.; H. L. Florence, F.R.I.B.A., Past-President A.A.; Henry T. Hare, F.R.I.B.A., Past-President A.A.; Gerald C. Horsley, F.R.I.B.A., Past-President A.A.; J. Archibald Lucas, F.R.I.B.A., Past-President of the Devon and Exeter Architectural Society; Glendinning Moxham, F.R.I.B.A., Past-President of the South Wales Institute of Architects; Alexander N. Paterson, F.R.I.B.A., Past-President of the Glasgow Institute of Architects; John Slater, F.R.I.B.A., Past-President A.A.; Ernest R. E. Sutton, F.R.I.B.A., Past-President of the Nottingham and Derby Architectural Society; Percy B. Tubbs, F.R.I.B.A., Past-President, Society of Architects; Maurice E. Webb, Past-President A.A.; G. P. K. Young, F.R.I.B.A., Past-President of the Dundee Institute of Architects; Herbert Baker, F.R.I.B.A.; Walter Brierley, F.R.I.B.A.; John Burnet, R.S.A., F.R.I.B.A., Vice-President R.I.B.A.; C. McArthur Butler, Secretary of the Society of Architects; Basil Champneys; H. Chatfeild Clarke, F.R.I.B.A.; T. Edwin Cooper, F.R.I.B.A.; Max Clarke, F.R.I.B.A.; Alfred W. S. Cross, F.R.I.B.A., Past Vice-President R.I.B.A.; Percivall Currey, F.R.I.B.A., Hon. Secretary Architects' Benevolent Society; G. Leonard Elkington, A.R.I.B.A.; H. M. Fletcher, F.R.I.B.A., Hon. Secretary A.A.; Walter S. A. Gordon, Licentiate R.I.B.A.; L. Rome Guthrie, A.R.I.B.A.; E. Vincent Harris, F.R.I.B.A.; George Hubbard, F.R.I.B.A., Past Vice-President R.I.B.A.; T. G. Jackson, R.A.; A. R. Jemmett, F.R.I.B.A.; Ralph Knott; F. S. Leslie, R.E., M.S.A.; Robert S. Lorimer, A.R.S.A., F.R.I.B.A.; Edwin L. Lutyens, A.R.A., F.R.I.B.A.; Ian MacAlister, Secretary R.I.B.A., Secretary of the Architects' War Committee; Alan E. Munby, F.R.I.B.A.; George H. Paine, M.S.A., Hon. Secretary of the Society of Architects; Sydney Perks, F.R.I.B.A.; Ernest T. Richmond, F.R.I.B.A.; Herbert Shepherd, A.R.I.B.A.; Alexander R. Stenning, F.R.I.B.A.; Henry Tanner, C.B., F.R.I.B.A.; Walter J. Tapper, F.R.I.B.A.; Paul Waterhouse, F.R.I.B.A., Vice-President R.I.B.A.; Thomas Wallis, M.S.A.; Wm. Woodward, F.R.I.B.A.; F. H. Wrench, Licentiate R.I.B.A.; John E. Yerbury, Licentiate R.I.B.A.; C. Stanley Peach, F.R.I.B.A., Hon. Secretary of the Architects' War Committee.

9 Conduit Street, Hanover Square, London, W.:
November 5, 1915.

House Building: Past and Present.

SIR,—There is much food for thought in Mr. Baillie Scott's excellent address in "The Architect" of November 5. Many people seem to think that it is an architect's business to embellish a building, and, this done, his occupation ends: indeed, I know of a workman who described one as about to build a "fancy front"! The truth is that, like a good tree, his work ought to be sound from the roots upward and all round. Firstly, good plan and section, with sensible parts, and the exercise of that great faculty of reserve and the knowledge when and where to leave off, and to leave out. "Etude" goes further than ornament, and though it costs brains, it saves shekels. Good ornament in the right place (the result of joy in it) is far better than much of it plastered mechanically over the whole of it. Indeed, the whole paper is a plea for naturalness, which is a virtue always to the fore in a good old house, and so painfully absent in the monotonous rows of modern ones which, while aping the grand too often, result in the ridiculous. A good thing, however severe, is never offensive. No smallness in a building can justify want of thought on the one hand, or mere pretence on the other, well described by Coleridge as "the pride that apes humility."—Yours, &c.,

E. SWINFEN HARRIS.

Nov. 6, 1915.

* A note submitted to the Manchester meeting of the British Association for the Advancement of Science. By Professor W. M. Flinders Petrie, D.C.L., LL.D., F.R.S.

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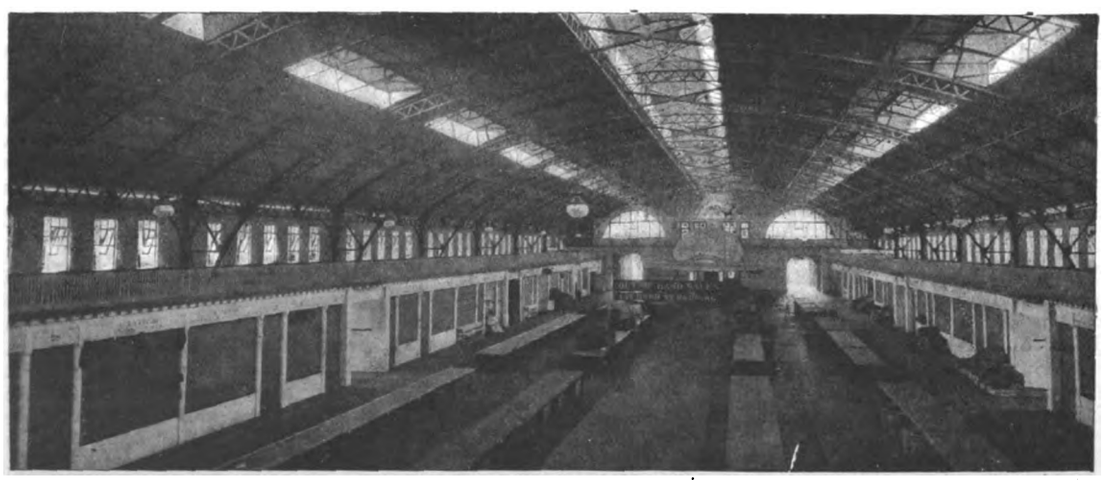
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Comite des Visites aux Blessés Belges.

SIR,—As the result of our appeal in June for French and Flemish books in order to give to the Belgian wounded soldiers literature in their own language we received about 3,000 volumes, for which we are extremely grateful.

They have been widely circulated, and it would be difficult to exaggerate the pleasure which they have given. But amongst the wounded we find many students and technical workmen who desire to follow up their studies, and for this purpose want books on science and engineering, chemistry, physical science, mathematics, mechanics, electricity, and other sciences; also commercial study books, technological works, &c.

Some of your readers may possess surplus literature of this nature, which has become useless to themselves, but would have the greatest value for these wounded soldiers. We appeal earnestly for gifts of this kind, or for financial help which would allow us to buy such books.

All parcels and letters should be addressed to Madame Carton de Wiart at the Library Department of this Committee, Sardinia House, Sardinia Street, Kingsway.—Yours, &c.,

H. E. MORGAN.
FLORA L. LUGARD.
S. CARTON DE WIART.

Sardinia House, Kingsway, London:
November 5, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Gawcott.—Proposed isolation hospital, for Buckingham Guardians.

DERBYSHIRE.

Ripley.—Cottage Hospital: extensions.

DEVON.

Barnstaple.—Houses, Yeo Valde Road. Messrs. Oliver (A.R.I.B.A.) & Son, architects, Bridge End.

Devonport.—Cottage home, Cotehele Villas: additions and alterations. Mr. C. Cheverton, architect, 64 Chapel Street.

Plymouth.—Council School buildings, Salisbury Road: restoration. Mr. E. B. A. Barron, architect, 11 The Crescent.

DURHAM.

Durham.—West House: addition, for Mr. A. Hutchinson.

Quarrington Hill.—Forty-three houses, for Messrs. Walter Scott, Ltd.

West Hartlepool.—Motor houses, Stockton Road, for Mr. J. Warden.

Offices, Greatham Street: additions, for Expanded Metal Company.

HAMPSHIRE.

Portsmouth.—Church, Simpson Road, Rudmore (sittings for 700 to 800), £18,000.

Sholing.—Girls' and infants' Council school, Station Road: completion (£1,400).

ISLE OF MAN.

Malew.—Mansion, Billown: additions. Mr. R. F. Douglas (of Douglas), architect. Mr. J. W. Corrin, contractor, 17 College Green, Castletown.

KENT.

Maidstone.—Congregational Church, Week Street: rebuilding, for the Trustees.

Five houses, King Edward Road, for Mr. N. Smith.

No. 78 Week Street: alterations, for Mr. D. G. Parks.

LANCASHIRE.

Bispham-with-Norbreck.—Three houses and a shop, Northumberland Avenue and Holmecliffe Road, for Mr. T. Bannister.

Motor garage, Rock Mount, Church Road, for Mr. F. Robinson.

Villa, Queen's Drive, for Mr. H. A. Thickett.

Bolton.—Rumworth Picture Theatre, St. Helen's Road: rebuilding, for Bolton Cinematograph Co., Ltd.

Stables, Back Derby Street, for Mr. T. T. Crook.

Warehouse, Lever Street, for Messrs. W. Walker & Son.

Hapton.—Proposed church and vicarage.

Todmorden.—Carrfield Mill, Cornholme: extension, for Messrs. Crabtree & Farrar.

Motor garage, Sunny Park, for Dr. Hopwood.

LINCOLNSHIRE.

Lincoln.—Boiler house, Canwick Road, for Messrs. Robey & Co., Ltd.

House, Lee Road, for Mr. F. H. Hutton.

Two houses, Allison Street. Mr. R. L. Holland, builder, 195 West Parade.

Gun-carriage works, Stamp End, for Messrs. Clayton & Shuttleworth.

Louth.—Motor garage, Eastgate, for Mr. Wilkinson.

MIDDLESEX.

Harefield.—Works: additions, for Bell's United Asbestos Works.

NOTTINGHAMSHIRE.

Worksop.—Chemical Works: store, for Messrs. Shirley, Alldred & Co.

SHROPSHIRE.

Oswestry.—Boys' secondary school (£1,900).

SOMERSET.

Burnham and Highbridge.—Proposed isolation hospital for thirty beds.

Wells.—Proposed isolation hospital.

STAFFORDSHIRE.

Chasetown.—House, Rugeley Road, for Mrs. M. E. Cockayne.

West Bromwich.—St. Andrew's (new) Church, Dudley Road, Carter's Green (£4,000).

SURREY.

Epsom.—Proposed public elementary school for 350 places.

YORKSHIRE.

Liversedge.—House, Quarry Road: additions, for Mr. W. O. Taylor.

Victoria Dyeworks, Hightown: addition.

Workshop, Ash Street, for Mr. L. Roberts.

Sheffield.—Workshop, Penistone Road, for Messrs. T. Rowlands & Co.

WALES.

Cardiff.—Proposed public hall (over 4,000 sittings). Westgate Street. Messrs. Willmott (A.R.I.B.A.) & Smith, architects, 29 St. Mary Street.

Pembrey.—Two hundred cottages. Mr. N. S. Chedburn, architect, 6 Stepney Street, Llanelly.

Swansea.—House, Cecil Street, Manselton, for Mr. J. Thomas.

SCOTLAND.

Aberdeen.—The Palace Hotel: extension, for Mr. A. A. Ryan.

Dundee.—Calender, Eadie's Road: addition, for Messrs. A. & S. Henry & Co., Ltd.

Workshop, Sinclair Street, for Mr. G. M. Beat.

Dunfermline.—School buildings (for 1,000 scholars), Rosyth (£20,000).

Glasgow.—Premises in Helen and Washington Streets and Harmony Row, for the Thermotank Company.

No. 231 Elliott Street: additions, for Messrs. D. Rowan & Co.

Houses for ploughmen, Hardgate Farm, Shieldhall, for the Clyde Navigation Trustees.

Grocery warehouse, 95 Morrison Street, for the Scottish Co-operative Wholesale Society, Ltd.

St. Rollox Iron Works, 28 Charles Street: additions, for Messrs. J. Melvin & Sons, Ltd.

Yoker.—Works, Harvey Street: addition, for Halley's Industrial Motors, Ltd.

IRELAND.

Bangor.—Two houses, Waverley Drive, for Messrs. F. & & J. Brice.

House, Ballyholme Road, for Mr. H. Thomson.

House, Clifton Road, for Mr. J. McMurray.

House, Seacliff Road, for Mr. R. A. Russell.

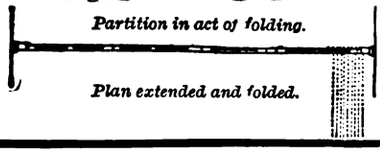
Dublin.—Church of Our Lady of Lourdes, Lower Gloucester Street.

THE Royal Academy Council have, it is understood, practically decided to hold a winter exhibition, and that it will take the form of decorative art on a wider basis than is customary at Burlington House.

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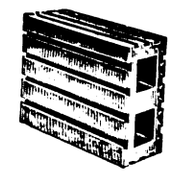
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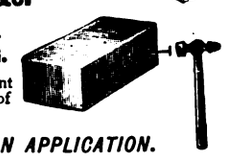
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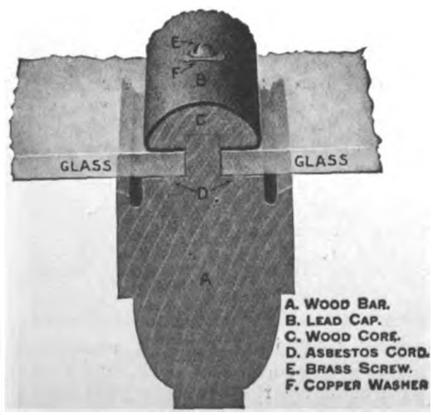
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, November 22.

Surveyors' Institution : Paper entitled "Case Law under the Finance Acts," by Mr. E. M. Koustam, barrister-at-law, at 8 P.M.

Victoria and Albert Museum : University Extension Lecture VIII., on "The Later Renaissance in Italy," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Royal Institute of Architects of Ireland : Extraordinary General Meeting.

Tuesday, November 23.

Illuminating Engineering Society : Discussion on "The First Report of the Departmental Committee on Lighting in Factories and Workshops," to be opened by Mr. Leon Gaster, at 8 P.M.

London University College : Paper entitled "The Methods of Evolution of Standard Co-efficients in Heating Engineering," by Mr. A. H. Barker, B.Sc., at 7 P.M.

Wednesday, November 24.

Royal Society of Arts : Paper entitled "Constantinople Ancient and Modern," by Sir Edwin Pears, at 4.30 P.M.

Thursday, November 25.

British Museum : University Extension Lecture IX., on "Greek Architecture : The Parthenon," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Saturday, November 27.

Institution of Municipal Engineers : Annual General Meeting at 4 Southampton Row, London, W.C., at 12 o'clock.

HOUSING PROBLEMS.

It has been estimated that there is to-day a shortage of 400,000 houses in this country, and that this shortage is increasing at the rate of 90,000 houses a year. This cannot be rightly attributed to the influence of the war, as the famine has been in course of production for several years past. It is true, nevertheless, that war conditions have intensified the causes inceptive of the famine. Dear money, increased cost of many materials, scarcity of labour, have been added to ante-war deterrents to house building. These deterrents have been principally operative in the case of the great providers of homes for the people known as speculating or jerry builders. Most of these men have gone under in the ineffectual struggle for existence against Governmental action towards owners of real property, and especially land.

Many of them, unfortunately, have been driven into private life and to other trades in order to earn a livelihood. Some of them were paying thousands of pounds a week in wages. Gradually their operations, hampered by legislation, dwindled, until to-day they are not paying so much as a penny-piece. On all sides there are builders who are confronted with ruin. Mortgagees, frightened by the Government's attitude to the building trade, have foreclosed. In many cases compositions have been accepted, and in numerous other instances affairs have been wound up without even a deed of assignment. And so the avalanche of ruin which is sweeping through the country receives no notice in the bankruptcy court, and thus may escape the attention of the general public.

The crushing blow to the speculating builder was the Finance Act of 1909, which not only imposed burdens, but, worse still, threatened others of unknown extent, and thus completely crippled his financial prospects. For the majority of speculating builders were small men, often operatives in some building craft, who both worked themselves and saw that their assistants gave a full day's work for a day's pay. The actual working of the Finance Act of 1909 has still further injured the speculating builder. His legitimate business profits have been seriously seized as due to enhanced site value. Before the crushing blow was delivered in 1909 the building industry employed a greater number of men than any other trade, even agriculture. But there have been great changes since then. The working men engaged in the building trade have emigrated in thousands to Australia, Canada, and the States, while since the war broke out thousands of those who remained at home hoping for things to improve have joined the Army. Those men who emigrated complain that they have been driven from the country by its Government. They could not wait on week after week in the faint hope that legislation which had robbed them of their livelihood in this country would be repealed.

The speculating builder and his workmen having been by legislation swept out of existence as members of the building industry, there has been a call on municipal enterprise. In some cases, as at Liverpool, this has been successful, with the assistance of the ratepayer's pocket. In others there has resulted such a state of things as has been revealed at a meeting of the Dundalk Rural Council, where a report was read from Dr. R. M. Blake, J.P., Ravensdale, dealing with the labourers' cottages in his district. The benevolent intentions of the Council for the better housing of workers had, he stated, been a complete fiasco, owing to their reliance on the Engineering Department of the Local Government Board for direction. The out-offices were within seven feet of the doors of the houses, which was not even decent, apart from sanitation. The chimneys all smoked, and in some rooms there were no chimneys at all, so that the rooms were unventilated. These rooms were death-traps for the sick, and patients suffering from pneumonia would have a better chance of recovery in a cart-house. Supplementing his written report, Dr. Blake stated that the cottages were stupidly constructed, and the chimneys smoked so badly that some of the old people would be mistaken for Christy Minstrels owing to the soot. He did not blame the Council for the deficiencies of the cottages, but rather the Local Government Board officials who insisted on such plans. The tenants were living under abominable conditions.

In the Warburton Lectures for 1914, which have recently been published in book form,* one delivered by Mr. R. Seebohm Rowntree and the other by Professor A. C. Pigou, these gentlemen have discussed some of the problems connected with housing, chiefly with reference to dwellings for what it is the fashion to call the working classes, whom, in our opinion, it would be better to term weekly wage-earners. These lectures were delivered before the war was, in this country, generally thought of, and so their considerations were made in the light of normal conditions.

Mr. Rowntree puts forward the ultimate factor deterring the speculating builder from operating as the price of land, added to increased cost of construction and the enhanced dearness of money. He is evidently obsessed with the idea that wicked landowners hold up their land for the sake of squeezing a higher price out of

* "Lectures on Housing." The Warburton Lectures for 1914. By R. Seebohm Rowntree and A. C. Pigou. (Manchester: The University Press.)

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the community, the idea which lies at the bottom of the financial legislation of 1909, that has wrought such disastrous results, but which is in the majority of cases quite fallacious, as landowners are, as a rule, only too pleased to get the sale value or ground rent which they are professionally advised is that properly attached to their property.

The lecturer refers, with half-hearted approbation, to the theory of taxation of land values as a means of forcing landowners to sell or release their land for building; but this would certainly not cheapen land, and would very unjustly penalise the many non-wealthy owners who cannot find customers for property of which they would be only too pleased to dispose. The wealthy owners would still hold on, and add to the price of their land the amount of taxation. A far better solution is the extension of traffic facilities, rightly advocated by Mr. Rowntree, which would cheapen land by increasing the available supply and so facilitate the extension of the garden-suburb movement, thus enabling the speculating builder to thrive whilst providing better living conditions for the worker—whether weekly wage-earner or salaried. One good point that our lecturer makes is the advantage of garden suburbs to the casual worker as affording him a home occupation at the time when his normal employment slackens.

Cheaper money by the assistance of the Public Works Loan Commissioners to private enterprise is another good policy advocated by Mr. Rowntree, and one which we think likely to be more fruitful than many another panacea advocated. If our Government set out to encourage the speculating builder, properly safeguarded as to the provision of the necessary minimum of healthy-house construction and land development, the community would soon be relieved from house famine at far less cost than by municipal experiments in housing.

To endeavour to solve the problem of healthy houses for weekly wage-earners at an economic rent by raising wages, which is another remedy Mr. Rowntree advocates, is again fallacious. The labour that builds the houses, that produces and conveys their material, is the labour of the weekly wage-earner. If you raise the wages you raise the cost of the house; the wage-earner is no better off for the revolution of a vicious circle. As we have before said in our columns, you cannot raise the earning power of the unskilled labourer by increasing the amount of coin you pay him weekly, and as long as you do not increase his earning power, you cannot increase his spending power. The attempt at this impossibility is the fallacy by which trade unions have so seriously reduced the comparative wealth of this country. The road to national wealth is increased output. The road to individual wealth is increased national wealth. Garden suburbs and healthy houses make for increased efficiency of the workers, and thus assist the increase of national wealth.

We have referred to the necessary safeguarding of the minimum of healthy-house construction and land development by the speculating builder. Professor Pigou in his lecture very rightly says: "It is the duty of a civilised State to lay down certain minimum conditions in every department of life, below which it refuses to allow any of its free citizens to fall." To determine the proper minimum is a problem of no little complexity, and there can be no doubt that legislation has aimed at too high a standard for the attainment of houses for the poorer wage-earners to allow of these being provided at an economic rent. Roads are too costly, construction is too substantial, and for these there has been sacrificed a desirable minimum of free space with a resultant overcrowding of houses upon land, of inmates within houses.

We must either therefore reduce the minimum standards or the State must subsidise. Professor Pigou points out an error in the direction of which subsidies have been given by the London County Council by their policy of erecting and letting at less than economic rents dwellings for the poorer classes in the central parts of London, where the commercial value of land is greatly in excess of the site value for working-class dwellings.

Whilst recognising that the policy of subsidies in aid of the housing of the poor is open to serious practical objections, Professor Pigou expresses his conviction that these objections are not incapable of being overcome, and with this we agree. The most satisfactory methods of subsidising house-building for the poorer classes are, we feel satisfied, first, improvement in traffic facilities; second, reduction of the standard minimum for construction of roads and houses; third, the provision of cheaper money for private enterprise. Mr. Nettlefold in his "Practical Housing" puts the point well when he says, "The housing question is very largely a personal question, and cannot be successfully dealt with in the wholesale fashion which is the only way possible when local authorities insist upon themselves building the actual houses required, instead of being content, and wisely content, to encourage others to build houses, on proper lines, keeping themselves free to supervise and control what is done, which is after all their first and most important function."

NOTES AND COMMENTS.

The Corporation of Glasgow in council assembled has adopted a recommendation from a joint meeting of the Tramways, Statute Labour, and City Improvements Committees that the Tolbooth Steeple should be taken down and rebuilt at the corner of Gallowgate and London Street. In deciding thus the Council reaffirmed the decision they came to in May. The finding will now be intimated to the Ancient Monuments Board for Scotland. The resolution was carried by 39 votes to 31, so that there is clearly a strong opposition, and in the discussion that took place on the question we may realise that the difference of opinion between the two resolves itself into a well-defined issue—whether an obstruction and impediment to civic improvement should be allowed to continue for the sake of a valuable monument of antiquity.

Bailie Morton, the seconder of the resolution, voiced clearly the views of those who would answer the question at issue in the affirmative when he said that the City Improvements Committee were anxious to make the Cross an up-to-date part of the city. They had all their plans made. They had the property there already bought, and they were waiting the decision of the Corporation to make a real city improvement and get rid of what was thought an obstruction to traffic at the foot of the High Street. They wanted the Corporation to adopt the recommendation of the committees, so that they might be able more fully to put their case before the Ancient Monuments Board. They must go before the Board in the first case, and if the Board still thought the Steeple should remain—contrary to the decision of the Corporation—the Board were bound to pass a petition to the Board of Works. That would allow the matter to remain over for eighteen months, and then, if it was to go any further, it was the Board of Works which had to make an appeal to Parliament insisting that the Steeple should remain. By offering to reconstruct the Steeple at the other corner, making a thing of beauty far more so than it was at present, the committees had given in as far as they could to those who wanted to retain the Steeple in some shape or form.

The friends of antiquity quote the words of Sir John Stirling-Maxwell: "It would be hard to find in Europe a city so old as Glasgow and yet so nearly destitute of visible proofs of its antiquity. So scarce are our old buildings that the Tolbooth Steeple may claim to stand next in importance to the Cathedral. It is, I believe, the only ancient building in the keeping of the Corporation." Whilst the historical associations of the monument were epitomised by Mr. Stark Brown, who reminded the Council that Charles I. made mention of it in a charter granted to the city. Cromwell marshalled his Ironsides outside of it. Claverhouse, after his defeat at Drumclog, brought his soldiers to its shelter and barricaded the

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streets there against Balfour of Burleigh and the Covenanters. It witnessed the rejoicings of the community at the time of the Restoration, and the magistrates came outside of it to announce the victory of the Prince of Orange. When anything of importance happened, it was to the Tolbooth that the people thronged to hear of it.

We are inclined to think that the trade unions connected with woodworking industries are attempting more than they can carry out in seeking to dictate the conditions of aeroplane work. A conference has been held of the Amalgamated Society of Carpenters and Joiners, the General Union of Carpenters and Joiners, the National Furnishing Trades' Association, and the United Pattern Makers, to consider new working rules for the members of the unions who are employed in the aircraft industry. This industry is practically a new one, and necessitates some regularisation of conditions. Other unions represented were the Amalgamated Union of Cabinet Makers, the Organ Builders' Association, the Woodcutters' and Machinists' Society, and the Wheelwrights' Union. A representative of the Home Office also attended.

It was resolved: "That having heard the statement of the representative of the Home Office regarding the proposed employment of women in the woodworking trades, this Conference is of opinion that all proposals for the extension of women's employment should be submitted to and discussed by national conferences of the employers' associations and the executive committees of the trades concerned."

A further resolution was carried declaring that "piece work in the making of aeroplanes should be abolished, and that we approach the Minister of Munitions and other Government officials informing them that our members will not be permitted to accept employment where piece work is introduced. Further, that we request the Minister of Munitions to issue instructions to the effect that all aeroplane work shall be executed on the hourly wage system and under conditions acceptable to the joint woodworking trades."

The woodworking trades have been more injuriously affected by the war than most industries, and it would be an advantage to them to find employment in aeroplane work. We hope the Minister of Munitions will be able to dispense with the assistance of those trade unions who by their restrictive regulations would seek to impede the rapidity of aeroplane construction during the war. This is no time for limiting hours of work, reducing to a minimum the output of work during those hours, excluding the labour of women and unskilled workers where these can be profitably employed in increasing our fighting power.

The Grimsby Corporation are to be congratulated on the success of their land speculation—or shall we call it wise foresight in the grasping of an opportunity?

At the recent sale of the Bradley Estate the Corporation purchased, through an agent, about 98½ acres of arable land for £2,895, and about 62½ acres of woodland, known as Bradley Wood, for £1,725. The woods are to be used for recreative purposes, and the land for burial purposes.

The Surveyor said that the Local Government Board had allowed a loan on sixty years repayment for all but 6½ acres of the land. For that plot the term was five years. Already part of the land had been let, and was bringing in £177 10s. per year. For five years there looked like being a loss of £20 per annum upon the purchase, but after that period there would be a profit on the arable land of £66 per annum, until such time as it was required for burial purposes. Setting this profit against the cost of maintaining the woods as a public resort, the Corporation had become the owners of something over 60 acres of land at a cost of about £10 per year.

An acute distinction between the tendencies of British, American, and German aims in education, and an analysis of the defects in our English system, were given by Mr. M. E. Sadler, Vice-Chairman of Leeds University, in an address at Bradford on "Education in England after the War." His view was that in modern education, which for the last twenty years had been everywhere in a state of tension and painful hesitating readjustment to the new conditions of thought and life, there were three great representative forces—Germany, the United States, and the British Empire. Each was typical of a different point of view; each contributed a different experience; and each could testify to the amazing power of educational influences when effectively applied. Germany stood for unity based on the State. The United States stood for variety based on the individual. The British Empire stood for an attempt at moral unity, based partly on individual experience, partly on the inherited tradition of various social groups, and partly on administrative organisation. All three had to face the same human problem. Each had learnt from the other two. Germany and America had worked on simpler theories, and had had the advantage of greater simplicity of aim. The British was the more complex view, the least easy to define, and the most liable to ineffective compromise. But the facts themselves were complex. The British tradition, at its best, seemed to have got nearer the truth than either the German or the American. But British education, when it fell below the best, as was too often the case, was far less effective in accomplishing its aim than were the German and the American in accomplishing theirs.

British education, and especially English education at its best, was stronger than any other in the development of personal character. The same care which the Germans had lavished on ways of securing intellectual attainment, and which the Americans had spent on methods of fusing together the diverse elements in their heterogeneous population, had been given in Britain, and particularly in the best English schools, to questions of personal conduct and character. British education had also been at least as effective as the German or the American in fostering the will to make that supreme sacrifice of life or limb which was claimed from a man in the hour of national peril. But it had been less successful than the German in producing a reasoned conviction that daily sacrifice must be made by the individual for the welfare of the local community to which he belonged. On the intellectual side, however, British education, with brilliant exceptions, was, as compared with the German (though not with the American), feeble, but markedly less so in Scotland than in other parts of the British Empire.

The gravest defects of English education were (1) the absence of an exacting standard in the training of the mind, as contrasted with training in conduct, with a resulting disparagement of the importance of general knowledge and a failure to realise the value of pure science as the fruitful source of new applications of scientific knowledge to the needs of life and industry; (2) uninstructedness of parental opinion in matters of education, showing itself in indifference to the quality of teaching and in capricious and casual choice of schools; (3) failure to stimulate the intellectual interests of boys and girls of average capacity, with resulting wastefulness in the husbanding of the mental powers of the nation; (4) inertness of mind towards science, alike in industry, in public administration, and in domestic management; and (5) neglect in many homes and schools of proper pride in perfect cleanliness of the person, in grace of bearing and of manner, and in neatness of attire, a neglect which was accompanied by the serious evils of ignorance of the proper care of infant life, of uneconomical allocation of expenditure in the household budget, and of neglect of the remediable physical defects of children.

"It is," he went on, "incumbent upon us to cure these defects for three reasons. First, the remediable defects in our English education are an obstacle to the

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growth of a fine social equality in our national life, and lessened the buoyancy, the adaptability, and therefore the happiness of the English people. Secondly, they gravely impair the future prospects of our industrial and commercial enterprise, and, by inducing want of foresight or neglect of desirable precautions and discipline, increase the cost of our administration. Thirdly, the weakness in our education, known all over the world to the injury of our intellectual and moral prestige, will hamper us in fulfilling the great mission which had been entrusted to the British Empire, and to Great Britain more than any other part of the Empire, in upholding the principle of disciplined freedom and in maintaining the conviction that conscience and international morality, and not the absolute authority of the State, are sovereign in human affairs."

But we were called upon to find a remedy for these educational defects at a time of impending poverty, when, moreover, the hard question of the right education of girls and women would have become more than ever urgent, and when there would be many other anxious claims upon the thought of the nation—claims which would require us to grapple with a variety of connected social problems at one and the same time, and on a consistent plan. It was some consolation to know that there was evidence that, given the right discipline and training, the British were among nations one of the most responsive to the influence of education. But great educational changes could not be lightly improvised or easily carried through. And their full benefits (as Bacon said of planting woods and colonies) were not realised until after an interval of nearly thirty years. Nor could great educational improvements be enacted by administration or Parliamentary order alone. "Education derives its power not from Acts of Parliament or administrative machinery, but from a spiritual movement of the national life. It needs organisation and far-seeing direction, but it can easily be cramped by excess of administrative control. Confusion in educational standards is a bad thing, but over-organisation a worse."

WAR ITEMS.

THE Committee on War Damage which was instituted only on the 28th ult. is making headway. The Executive Officers are:—President, Dr. Gordon-Munn, Lord Mayor of Norwich; Vice-President, Mr. H. Percy Harris, M.P. for South Paddington; Chairman of Executive Committee, Mr. Mark H. Judge, 7 Pall Mall, S.W.; Honorary Secretary, Mr. W. H. Southon, 115A Chancery Lane, W.C.

A memorial for presentation to the Prime Minister has been drawn up from which we quote the following:—

"Although the Government scheme only came into force on the 19th July last, immense losses and great hardships have been suffered in many districts, and it seems to your memorialists exceedingly unfair that these should not be borne by the nation; and notwithstanding the fact that the withdrawal of the scheme would now involve a considerable expense in the first instance, it is yet, for the reasons stated above, highly desirable that the Government should retrace their steps in the matter, repay the premiums already received, and, as trustees for the nation, proclaim their intention of giving fair compensation to the owners of property and goods that have already been, or may in future be, damaged or destroyed either by aircraft or bombardment. This, in the opinion of your memorialists, is the manifest duty of the Government, and one which they are bound by every consideration of justice, expediency and public policy, to recognise and carry into effect."

This memorial has already been approved by several corporate bodies including the following, who have agreed to join in the presentation of the memorial:—The Municipal Corporations of Abingdon, Barrow-in Furness, Gateshead, Ilkeston, Kidderminster, King's Lynn and Shrewsbury, and the Urban District Councils of Ashford (Kent) and Ilford (Essex).

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

A GENERAL meeting of the members of the Institute was held on November 8, at the Institute Rooms, 31 South Frederick Street, Dublin. In the unavoidable absence of the President, the Vice-President, Mr. William Kaye-Parry, M.A., F.R.I.B.A., occupied the chair. There were also present Messrs. R. O'Brien Smyth, W. A. Scott, A. E. Murray, F. Batchelor, Edwin Bradbury, J. H. Webb, L. O'Callaghan, C. A. Owen, P. J. Lynch, &c., and F. G. Hicks, hon. secretary.

Mr. A. E. Murray and Mr. R. O'Brien Smyth were appointed scrutineers of the ballot for election of hon. secretary and hon. treasurer, and reported Mr. Frederick Hayes elected hon. secretary and Mr. Lucius O'Callaghan hon. treasurer for the ensuing three years, 1916-17-18.

The revision of the by-laws passed by the Council on July 26 were read to the meeting and discussed, and after some slight alteration passed. An extraordinary general meeting will be held on November 22 to confirm these amendments. It was proposed to subscribe £5 from the funds of the Institute towards the afternoon entertainments to wounded soldiers at Ballsbridge.

ILLUSTRATIONS.

CHURCH AT CARRINGTON, NOTTINGHAM.

THE designs for this church were the subject of a limited competition some two and a half years ago, when Professor Prior, A.R.A., selected the design now illustrated, the work of Mr. W. Curtis Green, F.R.I.B.A. The church is to seat approximately 950 persons without galleries. The plan provides for this seating area with the obstruction of only two supporting columns, the roofs being carried by seven great arches, the thrusts of which are for the most part taken up by the main walls. The walls inside and out are to be cement rubble stone walling. It is intended that the tower when completed shall be crowned with a lead covered belfry partially coloured and gilded. Advantage is taken of the inequalities of the site to obtain a morning chapel and choir vestry at the lower ground floor level under the sanctuary, &c.

MILANESE ARCHITECTS WHO WORKED FOR IVAN III.

THE history of the development of Russian architecture is yet to be written. But notwithstanding the exceeding interest of the subject, it is one which cannot be handled in the space of a magazine article. The whole subject is so unfamiliar to the student of Western traditions, and has been so neglected in the schools, that it would require a whole volume to do it justice. All that one can hope to do at present is to create a healthy interest in some of its features and thus to stimulate the architectural student to more extended study. Correlatively it is of interest to know what we can of the architects (mostly foreign) who have worked in Russia, supervising the labours of the less skilful native craftsmen. With this end in view the following notes upon some little-known Milanese architects of the fifteenth century have been brought together.

Russian architecture is the product of many influences which have been at work throughout that great country's turbulent past. I exclude for the nonce those wonderful French and quasi-Classical productions so plentiful in Petrograd. These in themselves are undoubtedly fine and many of the first architectural merit, for Catherine employed skilled artists. But they are in no sense typically Russian. I rather refer to the older type—the type one finds in Moscow, that fine old town which was the capital when Ivan the Great was Prince.

Russia, owing her introduction to Christianity to the Eastern Empire, likewise obtained her ecclesiastical architecture from the same source. As a newly converted people, her immediate necessity was to construct churches, and the style was naturally Byzantine-Greek. Hence, from the tenth to the fifteenth century this Græco-Byzantine type was predominant. Modified as it was in the course of time by the influence of local and at times foreign elements, it eventually crystallised as one of the three essential divisions of what may be termed the Oriental offshoot of Classic architecture. These Oriental divisions were the Byzantine,

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USPENSKI CATHEDRAL, MOSCOW.—Rebuilt by FIORAVANTI, 1475-79.

the Russian, and the Ottoman. Their occidental complement comprised the Lombardic, the Saxon, and the Norman.

It had ever been the custom with the Russians to look to Constantinople (or Tsargrad, as they term it in their chronicles) for their architects. But when, towards the end of the fifteenth century, it was decided to pull down the Uspenski Cathedral, in the Kreml', Moscow, and to rebuild it, the Greek Empire had ceased to exist. So the experiment was tried of employing native architects. The cathedral had been damaged by fire in 1470, and in 1472 the Metropolitan Philip commissioned two Muscovite architects, Krivtsov and Muishkin, to undertake the work. Unfortunately perhaps the experiment proved a failure. The new building was finished all but the roof when the north side collapsed, and we find that they had to look elsewhere for capable men. I wonder how far these poor Russian craftsmen were to blame. The old building was only demolished down to the floor-level, and it is quite likely that the old foundations were at fault.

The reigning Grand-Duke Ivan III. was, it must be confessed, somewhat of a savage; but in comparison with the age in which he lived he must be considered on the whole a man of considerable enlightenment. He effected more improvements than any other Russian ruler before or after, from Vladimir to Peter the Great. With his accession a new era opened up for the arts. Architecture, sacred and profane, made sensible progress, and this progress was due in great measure to the fact that he sent to Italy for artists of repute to work for him.

After the collapse of the native-built Uspenski Sobor, he sent his ambassador Simeon Tolbuzin to Venice to secure the services of Aristotle Fioravanti to reconstruct it. This man, a native of Bologna, was famous in his day, and did some good work for Cosimo di Medici, Francesco Sforza, Pope Sixtus IV., and other men of note. He was not only an architect but also a skilled engineer, a mathematician and a medallist. In 1474 he went to Venice to work and to Constantinople to undertake some restorations for Mahomed II.

From Venice he went, in April 1475, to Moscow, and was accompanied by his son and pupil Andrea and an assistant named Pietro. Ivan III., having secured masons and master-builders from the neighbouring Principality of Pskov, placed them under the direction of Fioravanti. The latter approved of the remaining walls and the cathedral was rebuilt without further mishap and duly consecrated in 1479. In order that he might complete the building in the spirit of the required native style he went to Vladimir to study the famous cathedral there, which, although in ruins, was then considered as a veritable *chef d'œuvre* of architectural art. Fioravanti worked in Moscow until his death in 1486. He may possibly have had a voice in the construction of the bijou Cathedral of The Annunciation (Blagovieshchenski Sobor), which was commenced in 1484. Although it was not completed until 1489, and we are told that it was built by Pskov artists, it is quite probable that Fioravanti may have prepared the plans.

The year after Fioravanti's death Ivan's chief architect was Marco Rufo, often called Marco Friasin. In 1487 he commenced the construction of the ancient palace of wood which was built on the site of the present Belvedere Palace (the Terem). Little seems to be known of this man. He has been said to have been a Muscovite, but the mere fact that he was known in Russia by the surname Friasin proves him to have been a foreigner—probably a Milanese. It may be surmised that his efforts were not completely approved by the Grand Duke, for we find that in 1490 he sent ambassadors to Milan and engaged Pietro Antonio Solari—one of the famous Solari family—to come to Moscow. Invariably referred to (even in the latest Baedeker) simply as Pietro Antonio, this son of the celebrated Guineforte Solari was himself well known in Milan before he went to Russia. In 1476 he entered the service of the Duomo and even during his father's life-time he was appointed (as his substitute) to the office of Chief Engineer of the Duomo. In February 1481, shortly after the death of his father, he was officially installed as Director of the Works. A ducal patent of the same year publishes his succession to his father as architect of the Spedale Maggiore and of all edifices appertaining to the Duke Galeazzo Sforza. He continued in these appointments until 1489, earning the good opinion of all. In Milan he also has left us work upon the Chiesa dell'Incoronata, the Cappella Borromeo in S. Maria Podone, the little oratory of Cascina Olona, &c.

In 1490 he went to Moscow at the salary of ten roubles a month. This was then evidently considered a good wage, for it is recorded in the annals. In those days a rouble was a bar of silver weighing about a quarter of a pound, and worth approximately ten roubles of the present day, or about £1. So Solari received, roughly, £10 per month.

Arrived at Moscow he joined Marco Rufo in completing the old wooden palace, which was finished in 1491. He

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THE KREMLIN, MOSCOW.—Showing the Walls, the Imperial Palace, the Cathedrals, the Tower of Ivan Veliki, &c.

also worked with him in constructing the Granovitaia Palace, which was commenced in 1491 and still stands. This small building, now but a projection from the Grand Palace of the Tsars, was designed for use as an audience chamber, and consists of a single vaulted apartment. It was the first palace in the Kreml' to be built of stone, and its name is derived from the facetted appearance of the wall fronting the Sobornaia Ploshchad. This building was probably finished the year following; certainly before 1493, in which year Solari died. It is perhaps worth placing on record that Baedeker and the Encyclopædia Britannica both say of this palace, "Built in 1473-91 by the Italian architects Marco Rufo and Pietro Antonio." It will be seen that the dates 1473-91 are hopeless. Rufo only comes into evidence in 1487, after Fioravanti's death, Solari did not come to Moscow until 1490, and the building was not started until 1491. But nearly every writer one consults (some native authors even are not exempt) has seemingly followed those who have gone before, the result being a curious jumble of inaccuracies. Both Rufo and Solari were responsible also for at least parts of the Kreml' walls, notably the Spasskie and Nikolskie gates, both erected in 1491 by Solari. The spire of the Spasskie gate was added later (1626) by an Englishman.

Upon the completion of the Granovitaia Palata the Grand Duke commanded the demolition of his old wooden palace and the erection in its place of a palace of stone. But the carrying out of this project was delayed six years on account of the terrible fire which devastated Moscow on July 28, 1493, and destroyed the palace of wood. That he still kept the project in mind will be seen later.

After the death of Solari, in the year of the fire, another architect was procured from Italy. This was a young man Aloisio da Carezano, a Piedmontese, who is ever spoken of only by his first name. In Russian works he is always Aleviz or Alevizo Friasin. With all writers on Moscow his is a name to conjure with. We find a Russian author stating that he came to Moscow in 1484. An English author, usually reliable, credits him with having begun to construct the walls of the Kreml' in 1485. Another states that he began the Palace of the "Tsars" (who were then Grand Dukes) in 1487. A French author (Fabricius) makes a similar mistake. Finally, the author of the paragraph under Aloisio in Thieme and Becker (i. 331, 1907) writes "Aloisio traf 1494 in Moscau ein." He was certainly in Moscow in 1496, but appears only just to have arrived there, possibly in that very year.

Aloisio was a native of Carezzano, a district between Tortona and Alessandria in Piedmont. But he was living in Milan immediately before he was called to Russia. This is shown by the following extract from a letter written to Ludovico Maria, Duke of Milan, by a courtier of his, Gualtero. The letter, now in the Archivio Generale, Milan, is dated November 16, 1496. As it is in quaint fifteenth-century Italian, I give a translation of the essential passages:—

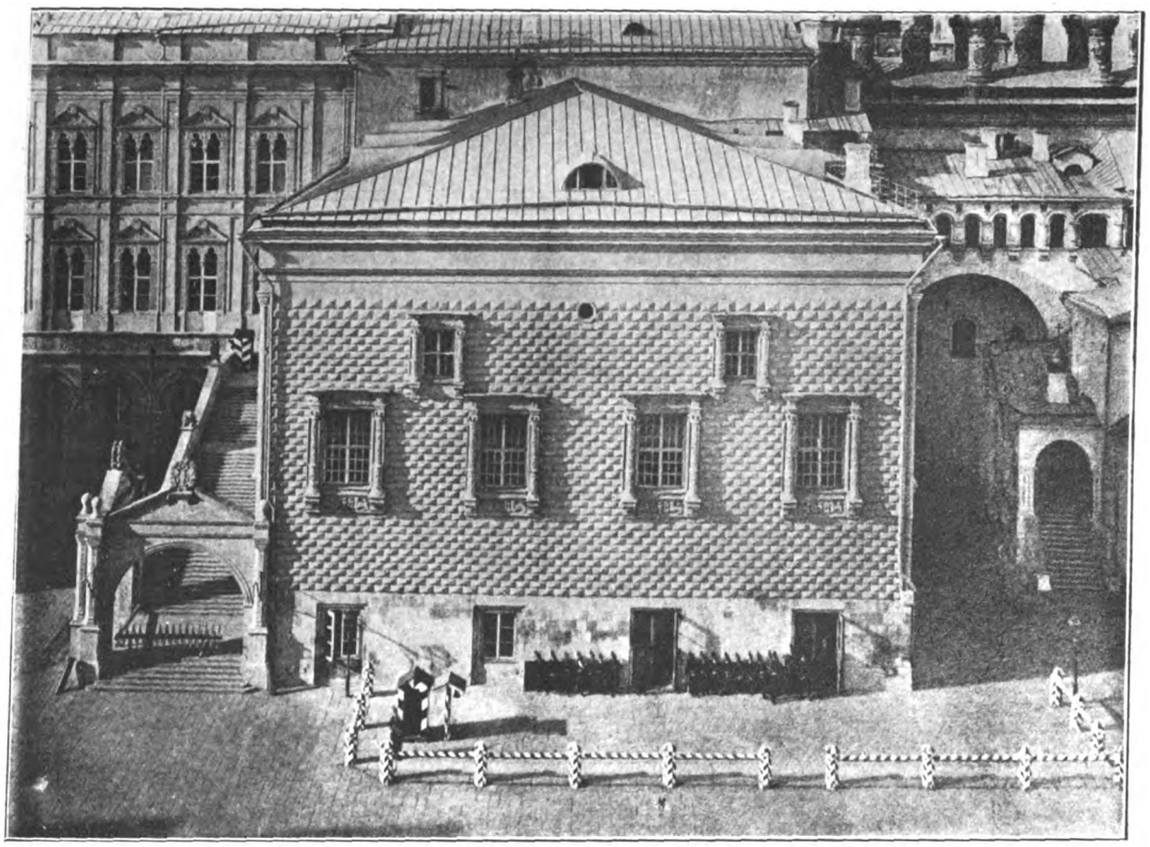
"Those who went into Russia were three—namely, Master Aloisio da Carezano, master of brickwork and engineer; Master Michele Parpajone, smith; and Bernardino da Borgomainero, stone-cutter: all three Milanese. The two latter have not written, but Master Aloisio has written two or three letters to Brother Egidio of S. Anglo, and Master Ambrogio da Castello, brother and brother-in-law of the said Aloisio. . . . The Prince has given him eight suits of court clothes, and he is well provided for, with no want of money, and the Prince wishes him to build a castle similar to that at Milan. . . ."

So the project of the new palace was still in Ivan's thoughts, but it was only in 1499 that he at length laid the foundation stone "of our palace of stone and brick near the Borovitskie gate." The annals give evidence that the principal part of the building was situated by the side of the cathedral, extending towards the Moskva river as far as the Church of the Annunciation on the spot now occupied by the Imperial Palace. "To the north and west," we are told, "were the sleeping apartments of the Grand Duke and his wife," extending to the church of St. Lazarus. There is every reason to believe that Aloisio's work on the latter portion still exists as the first or ground floor of the present Terem Palace. The palace that Aloisio built, although of more than one storey, was most probably, above the ground floor, of wood. But the foundations, which included the cellars (used anciently for provisioning apartments and household purposes), were of stone; and the ground floor of white stone and brick. Architectural evidence confirms the fact that the essential fabric of this lower stage differs strongly from the rest of the structure in feeling. It is indeed of much earlier date. So that in spite of the fact that in 1547 the palace was burnt out, and has often been renovated and sometimes enlarged, and though much later work covers the original, Aloisio's fabric still exists as the basis of the present Terem. The second storey is certainly not attributable to Aloisio. It was built in 1635-6 as a place of residence for the Tsarevich Alexis and Ivana Mikailovich. The Old Palace was completed in 1508, and shortly afterwards (as we are told in an early fifteenth-century document) Vasili III. held a reception therein—a sort of "housewarming," it may be presumed.

Meanwhile Aloisio had another important work in hand. This was the rebuilding of the Cathedral of the Archangel Michael near by. Before it was demolished Ivan ordered the removal of all the celebrated monuments from the old church. There were the sepulchres of his ancestors to the number of twenty-five (in twenty-three graves). These, with all the church property, were removed for safe keeping to the church of St. John, under the belfry.

On May 21, 1505, the Metropolitan Simon performed the ceremony of consecrating the site, and Ivan laid the first stone. Ivan III. died the same year. The cathedral was finished in 1509 and duly consecrated on November 8 of that year.

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GRANOVITAIA PALACE, MOSCOW.—By PIETRO ANTONIO SOLARI, 1491-92.

Baedeker gives this cathedral as being finished in 1508, and, incidentally, gives the architect a new name—"Alevisio Novi"—probably because some native authors have referred to him as the *new* architect Aleviz.

In 1508, under the Grand Duke Vasili III., who succeeded Ivan in 1505, Aloisio rebuilt the church of St. John below the great tower, which takes its name (Ivan Veliki) from the church. The Grand Ducal monuments had recently been again removed into the Archangel cathedral. There are two other churches in Moscow which were also built by him—that of St. Athanasius and St. Cyril, and that of the Saviour, both on the Sivtsova Vrashka and both built in 1514.

Not only was Aloisio a "master of brickwork," an engineer, and an architect of note; he was also a skilful worker in stone. There are several fine carved doorways in the Annunciation Cathedral attributed to him, and the lintels and posts of the doors in the oldest portion of the Terem are also thought to be his work.

In presenting these notes upon some almost unknown Florentines to English readers, it is not intended to give anything like an exhaustive account of their work, nor to consider their productions critically. All that is attempted is the collection of reliable data and the clearing away of some of the many errors which are constantly met with in popular guide-books, &c., with reference to this most productive period of the Renaissance in Russia.

THE SURVEYORS' INSTITUTION.

THE opening address of the session was delivered by Mr. John Henry Hanson, the President, on Monday, November 8. It dealt with the effect of the war upon the surveyors' profession, first upon the Institution and the individual, and secondly upon some of its points of contact with professional practice.

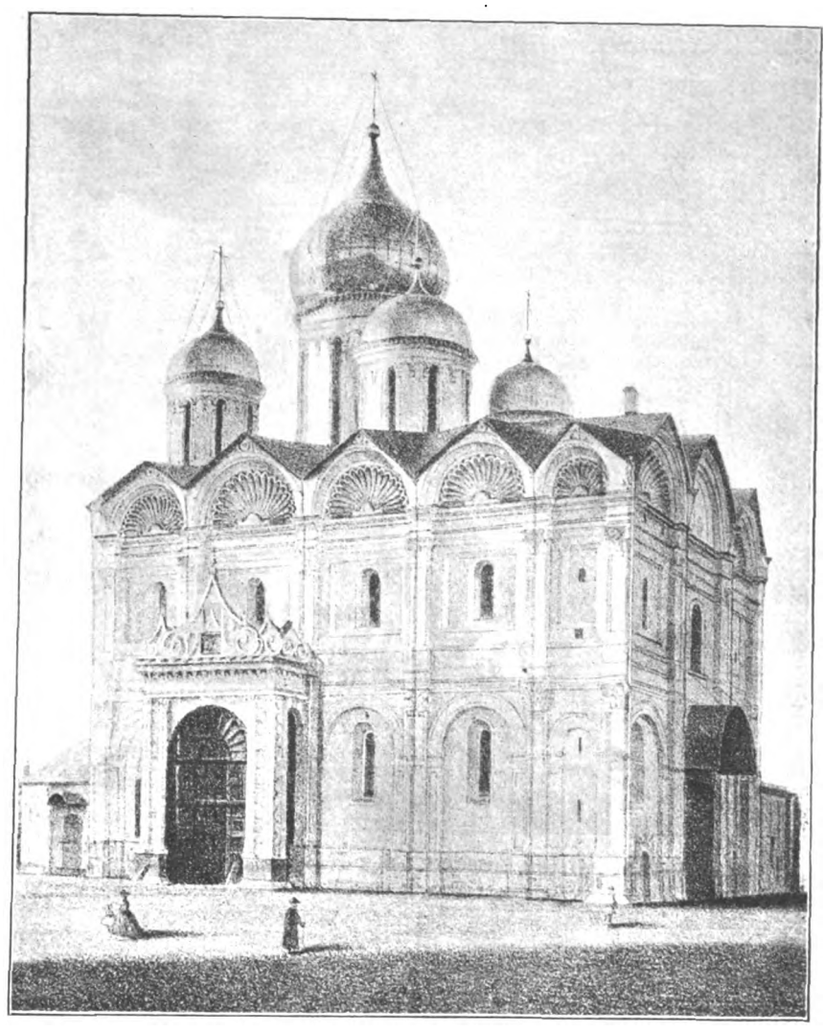
Although eighteen months ago, said Mr. Hanson, a large number of professional men were serving in the Territorial Forces either as officers or in the ranks, the total thus engaged compared with the total of those in practice was small. To-day this had all been changed, and it will generally be agreed that the most immediate and noticeable effect of the war in connection with the professional societies has been the enormous proportion of their members who have thrown on one side for the time being the whole of their ordinary pursuits and occupations in order to take up arms in their country's need.

Certainly this has been the effect in the Surveyors' Institution. When we consider that the total membership does not greatly exceed 5,000, of whom many must have passed the military age or be otherwise incapacitated from service, a response of between 1,300 and 1,400 men to the national call is worthy of the profession, and will compare favourably with that made by any other class of the community.

Of the effects of the war upon the Institution, that shown by the number of candidates presenting themselves for examination may be placed second in point of importance. In 1912, 1913, and 1914 respectively, 1,223, 1,412, and 1,240 candidates sat for the preliminary and professional examinations; and although these figures were somewhat abnormal, it is clear that the war affected very adversely the entry for 1915, when only 819 candidates sent in their names, and of those 209 withdrew before examination—mainly for reasons connected with the war—leaving a total of only 610 who actually sat. Even these failed to escape the prevailing conditions in preparing for examination, only 55 per cent. reaching the pass standard, as compared with the average since the examinations were instituted of 66.73 per cent. For 1916 a further reduction is shown in the number of those who have sent in their names—viz., 280—and it is more than probable that this total will be considerably reduced by withdrawals before the examinations take place in January and March next.

It is still impossible to offer any opinion, which would be generally applicable, as to the effect of the war upon the practices of individuals. Just as in some parts of the country the war has stimulated industry and given rise to an illusory appearance of prosperity, while other districts depending upon different forms of employment have suffered severely, so the consequences to the individual surveyor have varied with the district in which he lives, and with the branch of the profession he happens to follow. Some indication of its effect upon one of the branches of our profession is, however, shown by the returns of the Estate Exchange Register of Sales of Property. The total for the four quarters commencing on October 1 last (£3,025,375) is little more than one-third that for the preceding four quarters (£8,415,244); and although these figures may affect directly only one class of members, it is undoubted that the movements of the real estate market provide a useful index of the activity of the profession generally.

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ARCHANGELSKI CATHEDRAL, MOSCOW.—Rebuit by ALOISIO DA CAREZANO, 1505-09.

But even in those parts where the activities occasioned by the war are most feverish, cases will be few where the professional man's earned income has not suffered as compared with an average year. Not infrequently this will not be accompanied by a corresponding diminution in the work falling to be done by the individual, as the absence of one or more of the principals or members of the staff, whose places are being kept open, necessitates a redistribution of the work among those remaining. The question of finding employment on their return to civil life for men whose businesses have been shut down or whose situations have not been kept open, opens out a field for organisation and valuable work in which the Institution will be able to take a useful part.

It may be of use here to remind members of the concession allowed by the Finance Act, 1914 (Session 2), Section 13 (1), and the Finance Act, 1915, Section 20, which revives the old privilege given under Section 133 of the 1842 Act, and Section 6 of the Revenue Act, 1855, and entitles taxpayers, whose profits are affected by the war, to have the bad year taken into account in calculating the income tax payable by them. Members likely to benefit by the concession would do well to discuss the matter with their surveyors of taxes. The hardship entailed by an increased income tax and a reduced income has also been recognised in the recent Budget, which proposes that where the actual income of 1915-16 falls short by more than 10 per cent. of the income on which tax has been paid, additional relief may be claimed. The following extract from the financial statement of the Chancellor of the Exchequer in September last indicates the nature of this relief:—

"Relief is also proposed from the additional income tax in certain cases. The whole of the additional duty will be repayable in the event of any individual proving that his actual income from all sources for the year is less by one-fifth than the income on which he has paid taxes. This is an endeavour to redress the hardship upon the individual who this year, having a very small income, is nevertheless assessed on the average of the three preceding years when he had a very large income, and finds that he is called upon to pay 3*s.* 6*d.* in the £ income tax in respect of an income which it is true he once enjoyed, but which he now no longer possesses. It is proposed, where his actual income is less by one-fifth, that he shall be relieved of the whole of the 40 per cent increase, and that where the deficiency does not amount to one-fifth, but is more than 10 per cent., repayment of a proportionate part of the additional duty will be allowed."

Up to the present, although there is plenty of evidence that in our profession, as in others, a remodelling of the scale of living may be necessary, the instances of real distress which have come to our notice have not been numerous.

There is one class of our members, however, which has suffered indirectly very severely through the war, and whose case calls for special reference and sympathy. We are all aware that differences of opinion exist as to the wisdom of the land legislation inaugurated in 1909, but those differences do not extend to the personnel of the staff got together by Sir Robert Thompson and Mr. Edgar Harper. They have carried through their difficult task with marked tact and ability. If the effectiveness of their work is found to have been lessened by too close a confinement within statutory definitions, the reproach should not be addressed to them, but to those responsible for the drafting of the measure they were called upon to administer.

It was perhaps not unnatural that, in view of the small financial return from the land taxes, the proportionately high cost of the department, and the fact that the valuation was expected to be completed in 1915, the Government should have been pressed from some quarters to include a large reduction in the valuation staff among the economies which must be exercised in a time of such financial stress as the present.

Wholesale retrenchment is taking place, giving rise, it is to be feared, to hardship in many cases, and even to acute distress in some. Special hardship is to be feared,

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particularly among senior men on the temporary staff, who had without contradiction generally looked upon their positions as a certain step towards the permanent establishment, and had thereby been led to incur responsibilities which they would otherwise have shunned. The Government should do what it can to reduce the inevitable hardship by insisting that competent men from the dismissed staff would be looked upon as having a prior claim upon all vacancies in other departments which they have the necessary qualifications or ability to fill.

Next as to the main points in which the effects of the war and the resulting legislation affect our work as surveyors.

The conservation and augmentation of our home-produced food supplies were naturally among the first of the national requirements to which the attention of Parliament was directed, and a number of statutes having this object were passed in the early days of the war.

More important, perhaps, from the surveyor's point of view, however, are the provisions of the Defence of the Realm Consolidation Act, passed on November 27, 1914, and the regulations thereunder.

Generally speaking, in their far-reaching operation the recent provisions exceed anything that has gone before, as indeed from the extreme gravity of the times and the modern conditions was to be expected. However, they are not so drastic in their effect upon the individual owners affected as were the provisions of the first enactment of the kind.

The Act gives to his Majesty in Council powers, during the continuance of the present war, to issue regulations for securing the public safety and the defence of the realm, and by such regulations to provide for the suspension of any restrictions on the acquisition or user of land under the Defence Acts, 1842 to 1875, and the Military Lands Acts, 1891 to 1903, to which reference will be made later. Such regulations were subsequently made, and in the opening paragraph it is declared that "the ordinary avocations of life and the enjoyment of property will be interfered with as little as may be permitted by the exigencies of the measures required to be taken for securing the public safety and the defence of the realm"; and it is directed that those carrying the regulations into effect are to observe this general principle. But, subject only to this declaration of general principle, the competent naval or military authority, and any person duly authorised by him, is authorised, where for the purpose of securing public safety in the defence of the realm it is necessary so to do, to take possession of land, to construct military works (including roads) thereon, to remove trees and fences, to take possession of buildings or other property, to place buildings in a state of defence, to cause buildings to be destroyed, or property to be removed or destroyed, and to do any act involving interference with private rights of property necessary for the defence of the realm. Power is also given to the like authorities to use land for the training of his Majesty's Forces, and to stop up roads. And so far no provision is made for compensation, as to which therefore no claim as of right would presumably lie against the Crown. But this matter has not been overlooked, and a Royal Commission of Inquiry, dated March 31, 1915, has been issued appointing Mr. Henry Edward Duke, K.C., and Sir James Thomas Woodhouse, and Sir Matthew Yemmill Wallace to inquire and determine and to report what sums in cases not otherwise provided for ought in reason and fairness to be paid out of the public funds to applicants (not being subjects of any enemy State) who are resident or carrying on business in the United Kingdom, in respect of direct and substantial loss incurred and damage sustained by them by reason of interference with their property or business in the United Kingdom through the exercise by the Crown of its rights and duties in the defence of the realm. Thus it is to be noted compensation is not of right but of grace.

These provisions are both drastic and far-reaching, but I think we shall all agree that they are quite necessary and proper and may be said to have their foundation in the ancient common law prerogative of temporarily occupying and using the property of a subject, a right that has been emphasised by the Master of the Rolls in a recent case, in which he accepted as authoritative its expression in an old statement of the law to the effect that "when enemies come against the realm to the sea coast it is lawful to come upon any land adjoining the sea coast to make trenches or bulwarks for the defence of the realm for every subject hath benefit by it."

This, after all, when one comes to think about it, is but a declaration to which surely all will subscribe, that the needs of the realm are to be and must be the paramount consideration, else our rights and our privileges cannot be maintained or be of value.

In this respect it is especially interesting to turn to the first statute bearing on the question passed in the year 1512, 4 Henry VIII., cap. 1, in circumstances and for reasons in striking contrast to the present, yet in words which with little alteration and extension would be quite appropriate to-day. They are as follows:—

"For as much as the Land of Bretayne (Brittany) and also the haven of Brest lyeth streight against the South Seecostes of the Countie of Cornwall, and that the French our anncient enemyes and Bretaynes enemyes by reason of their fysshing upon the see costes knowe as well every haven and creke within the said Countie as every landyng place in as large maner as any subgiett of our Sovereign Lors the King dooth and that the said Countie is threescore and ten myle in lenght and the substaunce thereof right little more than six myle in brede from the Southsee to the Northsee by reason whereof they also knowe that grete multitude of people can not shortly resort to put theym of at theire landyng: and in divers and many of the seyd landyng places nother pile blokhouse ne Bulwork is made to greve or annoye theym at their landyng; which considerations unto our sayd enemyes grete audacite comfort and corage gyveth to arrive and land in the same parties to the grete annoyance of our said Sovereign Lordis subgiett there and to the utterly undoyng of divers and many of theym oonles a remedie be the sooner provided."

This statute, which was to endure to the following Parliament, went on to enact that the justices of the peace and sheriffs should survey the county from Plymouth to Land's End, and appoint towns and parishes to make bulwarks, braies, walls, ditches, and all other fortifications for the same, and that every mayor and constable appointed by the justices and sheriff was to command all the inhabitants within the precincts of their office to be at the seaside with such instruments as they had or could get for making such works, under penalty of not exceeding ten days' imprisonment, without bail; and there were similar provisions as to landing places in other parts of the realm. This, it may be said, was a kind of "national service" with a vengeance, as by it personal service was commandeered, subject to penalty and without reward, and it went on further, you will be interested to hear, to provide a power "to enter upon every man's ground, of what estate or degree he be of, and also to dig for and take materials for the said works, and this expressly without any manner of payment to be demanded, or any manner of action to be attempted in respect thereof."

After this there were a number of statutes passed, as, in fact, there have constantly been right up to recent times, with the object of enabling the State to acquire specific lands for special purposes.

The earliest statute of the kind was passed in 1708 in the reign of Queen Anne, and between that time and the year 1803 twenty-eight of such statutes were passed.

The chief point of interest in these statutes is that generally speaking in those up to 1845, when the Land Clauses Act was passed, the lands in question "to the end that the true and real value of the estates may be ascertained and the owners and proprietors thereof may have just and reasonable satisfaction" were vested in trustees in trust for the owners until compensation should be paid and thenceforth in trust for the Crown, and commissioners were appointed to decide claims. Owners, if they wished, could have compensation settled by a jury to be summoned by the sheriff upon warrant from the commissioners, a provision which may be said to be the forerunner, as it were, of the procedure under the Lands Clauses Act, and which since it passed has usually been incorporated with the Acts in question.

At the beginning of the nineteenth century, however, there was the great impetus due to the apprehension of invasion by Napoleon, and we come to what may be said to be the first of the statutes of general application which later came to be called Defence Acts. It is the statute of 43 Geo. III., cap. 55, passed in the year 1803, and contains words which on the authority of the present Master of the Rolls contain a plain assertion of the prerogative right in its recital that "it is expedient that his Majesty should be enabled to exercise in the most effectual manner the powers by law vested in him for preventing and repelling an invasion of the United Kingdom by his Majesty's enemies and that for such purposes provision should be made . . . to enable his Majesty to provide grounds which may be

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wanting for encamping his Majesty's armies and for erecting batteries beacons and other works which may be necessary for the public service; and also to provide for the indemnity (in certain cases) of persons who may suffer in their property by measures which may be taken for the defence and security of the country and annoyance of the enemy."

It then (among other matters), in case of actual or apprehended invasion, empowers the Crown to authorise county lieutenants, upon request from the military authorities, to order the removal or appropriation of anything which might be useful to the enemy or applicable to the public service, and in case of necessity to remove, destroy, or render useless any house, mill, bridge, or other building, or any matter or thing whatsoever and generally to do and act in the premises as the public service and the exigencies of particular cases should require. General officers are also authorised to survey and mark out any land required for the public service and to treat and agree with the owners for the possession or use thereof during such time as the exigencies of the service should require. No lands, however, were to be taken without the consent of the owners unless "the necessity" were certified by the lord-lieutenant or two deputy-lieutenants, or unless an enemy had actually invaded the kingdom. If no agreement were arrived at two justices . . . might be required to give immediate possession by means of a warrant addressed to the sheriff. As to compensation in the case of houses, &c., destroyed, the Treasury were to appoint persons to assess compensation, and if their figure was not accepted, two justices might be called upon to settle an amount; while in the case of lands taken, two justices or two deputy-lieutenants were to issue a warrant to the sheriff to summon before them a jury to decide claims and settle compensation. It is to be noted that this statute appears only to have contemplated temporary use of land during an emergency.

In the next year a further statute was passed providing for absolute purchase of lands, but with substantially the same restriction on compulsion, substituting, however, "expediency" for "necessity," and in case of no agreement possession of lands could only be obtained if owners failed for fourteen days to accept what was offered to them, while in the matter of compensation an appeal from the decision of the jury was given to either side to bring the verdict before the Court of Exchequer for consideration, which Court might direct a common or special jury to be summoned for the next assizes to re-try the matter before a judge, this second verdict being final.

There was a further amending Act in 1809 of no great importance. Then, after a period in which a number of minor Acts, which are mainly special Acts for particular purposes of the kind already referred to, or "vesting" statutes, we come to the Defence Act of 1842. This was chiefly a Consolidating Act, and established no fresh precedent of interest to surveyors, its provisions in this regard being those of the Acts of 1803 and 1804.

This Act, and other Acts amending it, or passed with like objects, and which raise no points of interest to us surveyors that have not already been covered, are known as the Defence Acts, 1842 to 1875. But it should be mentioned that in an Act passed in 1891 (the Ranges Act, 1891) it was provided that when any land was acquired under the Defence Acts the person, or authority acquiring it, may require the amount of compensation to be settled by arbitration instead of by jury.

In one of the Defence Acts (passed in 1860) appears what in a sense may be called a provision for betterment in the case of prohibition against building upon a man's land, the tribunal being required to consider whether the agricultural value of the land affected was increased by drainage works carried out by the Secretary of State, or whether its available area was increased by the removal of hedges or ditches, and to take the same into account.

There were also in force in August 1914 four measures known as the Military Land Acts, 1891 to 1903, for facilitating the acquisition or control of lands for various military or naval purposes, and the Military Manœuvres Acts, 1897 and 1911, but these, generally speaking, seem to have followed the lines of the Lands Clauses Acts as to acquisition of lands and compensation.

Summarising these provisions as a whole, we see that in the earliest days there was no provision whatever for compensation; that later came a period during which the Crown was subject to definite provisions and restrictions for the protection of owners as to compensation similar to, or the same as, those in the case of the compulsory acquisition of lands by subjects entrusted by Parliament with such powers. And lastly the matter is now dealt with under statutory regulations in which, save so far as may be contained in a general declaration of principle that interference should be limited to necessity, there is no provision or restriction in favour of owners, nor for payment of compensation as of right. Provision, however, has been made for such payment as of grace, the amount to be determined by a Royal Commission specially appointed to deal fairly and reasonably with the matter.

Exercise of the powers conferred by these Acts of Parliament have necessitated the calling in of surveyors throughout the whole country, and thus provided work at a time when it has been most opportune and acceptable to the profession.

MEDALS OF THE RENAISSANCE.

(Concluded from last week.)

LECTURE III.—THE FLORENTINE SCHOOL.

MR. G. F. HILL, in the third Rhind Lecture, chiefly dealt with the Florentine school of work. The Florentine school, he said, stood apart from the other Italian schools. Bertoldo di Giovanni (about 1420-91), pupil of Donatello and master of Michelangelo, was the first Florentine (except Guacciallotti, who worked mainly in Rome) to whom any number of medals can be given. His medals, however interesting in subject and as the work of a famous artist in bronze, are dry in execution and faulty in composition. His most interesting piece commemorates the Pazzi conspiracy of 1478, showing the murder of Giuliano de' Medici in the choir of the Duomo at Florence and the escape of Lorenzo. After Bertoldo we come to the great period of Florentine medallic art. There is only one known name among the artists, who must have been many, although an uncritical attempt has been made to father practically all the Florentine medals of the late fifteenth and early sixteenth centuries on this one artist, Niccolò Fiorentino (1430-1514). The style of the sculptor is also clearly seen in many Florentine medals; for then, as now, sculptors often made the mistake of thinking that a medal was only a piece of sculpture on a small scale, as though a poet should think you could make a sonnet by boiling down an epic. Fiorentino, however, was a brilliant portraitist. A sombre, not to say sinister, portrait of Lorenzo the Magnificent is one of his few signed pieces. But we shall not be far wrong in accepting the attribution to him of the great medal of Anthony Bastard of Burgundy, made when Niccolò was in the North about 1468, and when Memline painted a portrait of the artist, once, if not now, in the Antwerp Gallery. Other medals of the Florentine school represent Savonarola; and of considerable interest to us is one of Sir John Kendal, of the Westmorland family, who held high office in the Order of the Knights of St. John. There is a group of medals of singular interest made in Florence or at Rome under Florentine influence, with the heads of Christ and St. Paul, the former being based on a Flemish original, although it professes to be copied from a Byzantine emerald carving. This head of Christ became extremely popular on medals and other small works of art; but in the sixteenth century the type which we owe to Leonardo da Vinci gradually ousted it from favour, and still continues to be copied by the unscrupulous manufacturers of what they call "first-century portraits of Christ."

Benvenuto Cellini (1500-71), in spite of the poverty of his ideas and his lack of power to compose a design, became by his marvellous power as a craftsman the leading influence in the medallic art in the sixteenth century. He was especially proud of his struck medals, and describes the methods used by himself and some of his predecessors. It is in the early sixteenth century that we find the first use of the screw machinery in one form or another which replaced the hammer and made for neatness and finish in striking. Cellini also describes the use of separate punches for making the different portions of the design and inscription on the dies. These were useful as labour-saving appliances, but by destroying the unity of the design assisted the decline of the art. Cellini also cast some medals, of which that of Cardinal Bembo is far superior to any other medal by the same hand. Beside Cellini, though he is a Sienese and not a Florentine, we may place Pastorino (1505-92) the most prolific of all Italian medallists. An extremely facile though not very intellectual modeller of portraits in wax, which he reproduced for the most part in lead castings, he became all the rage, like any fashionable portrait painter of the present day. Alessandro Cesati was from

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about 1538 to 1560 the chief representative of the classicising style. His accomplishment, technically speaking, is extreme, and Michelangelo is said to have praised the reverse of one of his medals as the acme of art. One suspects that some touch of irony has evaporated from Vasari's report of this verdict.

Lecture IV.—The Medals of the North of Italy and German Schools.

At Venice, said Mr. Hill, they were short of documentary evidence about the local medallists, except as regards the sculptor, Alessandro Vittoria (1525-1608), whose medals are in a somewhat heavy but characteristic manner. A very attractive artist made about the middle of the century a large series of portraits of men and women, very often of married couples, of pairs of brothers, and so on; pleasing medals, with a certain lively intimacy not too common at this time. The most important school in North Italy in this century was that of Milan. Its founder was Leone Leoni (1509-90), a man of more intellect than Cellini or Pastorino, with great power of composition and modelling, as well as fineness of execution. He worked for a time at the Papal Mint; but a brutal assault on a rival—his methods were not unlike those familiar to them from Cellini's autobiography—brought him to the galleys, from which he was released at the instance of the Genoese Admiral, Andrea Doria. This is all commemorated on a medal. He worked for various other masters, including Charles V., who knighted him. His visit to Brussels did much to spread the influence of the Italian medal in the Low Countries. A contemporary of Leone Leoni is Jacopo da Frezzo, who was much employed in the Netherlands and in Spain by the Emperors. He even came to England at the time of the marriage of Philip II., of whom, as of Mary Tudor, he made a number of highly accomplished medals. Antonio Abondio, who was probably of Milanese origin (1538-91), is the last name among North Italian medallists of the Renaissance. But most of his work was done north of the Alps, in the Imperial service. His medals of Rudolph II., Maximilian II., and various archdukes, not to mention more private persons, are masterpieces of the wax-modeller's art.

The German medal holds to the Italian more or less the same relation as Roman sculpture does to Greek. Its high technical accomplishment does not prevent it from illustrating the truth that most German art of the old masters outside of Dürer and Holbein is "a synonym for misdirected effort." The German made little use of the wax model, preferring wood or hone-stone. The medal here had two sources, in ordinary metal-casting and in goldsmithery, associated respectively with the schools of Augsburg and Nuremberg. It was the outcome of a straightforward application to the new demand for portraits of the artists' ordinary stock-in-trade; he simply carved a portrait and put on the reverse a coat-of-arms. He used neither imagination nor conceit. Apart from a few unimportant anticipations, we may regard the medal as being introduced by Albrecht Dürer. The pieces which go back to him—and some of them were not only designed, but may have been modelled by him—are masterpieces, and if German medals had developed on these lines it would have been well. But Dürer in this particular line was in a sense an amateur; one is reminded of Alberti's portraits of himself. And the German system would not tolerate the amateur. So his medals remained without influence, because he did not become a professional. Of the professional medallists, Augsburg produced the best masters. Hans Schwarz is the most powerful of the Germans in this art; his medals lack finish, but their strength, and occasionally their dignity, are unmistakable. His younger rival, Friedrich Hagenauer, was a very efficient craftsman, more refined but much less vigorous than Schwarz, using lower relief in contrast to Schwarz's strong lights and shadows—in fact, more in sympathy with painting than with sculpture. The third name to be mentioned amongst the Augsburgers is Christoph Weiditz, who worked there chiefly until 1536 or later. His style is broader, more sculpturesque than Hagenauer's, and though not so virile as Schwarz, he can occasionally produce a forceful portrait, like that of Fernando Cortes. The remainder of the German medallists are of minor interest. It must be remembered that in Germany the minor arts were governed by a highly organised commercial system; the interests of the guilds were paramount. The average German medallist seems to have been commercial rather than artistic in his attitude towards his work. This explains, among other things, the mechanical uniformity of the great mass of German medals.

Lecture V.—The Medals of the Low Countries and of France.

The Italian invasion of Flanders by medallists, said Mr. Hill, began late in the fifteenth century. They had seen Niccolò Fiorentino and Giovanni Candida at the Court of Charles the Bold. But the Flemings had to wait until a great native artist took up the art before any school was established. This artist was Quentin Metsys. It is true that they could not accept the attribution to him of the medals of himself and of his sister-in-law, Christine Metsys, nor of the very interesting medal, by the same hand, of William Schevez, Archbishop of St. Andrews, which was made when he was travelling to Rome in 1491. But they knew from a statement of Erasmus that Metsys made a medal of him, and they need have no hesitation in identifying it with the noble medal of 1519 with Erasmus's device of a terminal figure on the reverse. Another of the first names in the Flemish school was Jean Second (1511-36), well known as a clever writer of Latin verse; his "Kisses" are as famous as anything in Latin outside the Classical period. His short life was a round of excesses. Among his medals is one of his lady-love, Julia. They all showed a sincerity of feeling, which attracted one none the less because of their amateurishness or lack of finish. The most prolific of Flemish medallists was the sculptor Jacob Jonghelinck (1531-1606). A long series of more or less official medals came from his hand, and many others which were hardly his had been attributed to him; in fact, he was the representative of the art at the time. A much finer artist than Jonghelinck is Stephen H. He worked from 1558 to 1572 in Utrecht, Antwerp, Poland, and England; and his portraits were as charmingly intimate as anything to be found in the best period of Dutch painting. His work in England in 1562, 1563, and 1565 was not confined to medals, for painted portraits signed by him were still extant.

Medallists in France.

In France the medal, almost from its inception, was closely in touch with the officials of the municipalities or of the Government, so that they knew more of artists working in a public than in a private capacity. The extant medals of native work before the end of the fifteenth century, like those relating to the expulsion of the English from Calais, were little more in technique and style than enlarged coins. But in the last decade of the century they had some very interesting pieces, complimentary medals presented by loyal cities of France to their rulers who visited them. Thus Lyons in 1494 commemorated the State entry of Anne of Brittany by striking and giving her 100 gold medals, with portraits of herself and her husband, Charles VIII. Italian influence was paramount during the reign of François I. (1515-27), but Henri II. took much interest in his native official engravers. He obtained machinery for striking coins from Augsburg, and in 1551 installed the machinery which in time replaced the hammer for striking coins, after the inevitable struggle with the conservative officials of the old mint. The products of the new mint were extremely neatly struck, but, graceful as the work of these French medallists was, it is little more. Some of the coins and medalets of François II. and Mary Stuart produced about 1558 were of interest to students of Scottish iconography. In the second half of the century the only medallist who could be regarded as more than a craftsman was Germain Pillon, who was made Controller-General of Effigies for the mint in 1572. It was to him that they owed the clever but somewhat superficial large portrait medallions of Henri II., Catherine de Médicis, Charles IX., and others, as well as the signed medal of the poet Philippe Desportes. Italy still continued to supply medallists to France. One, Giacomo Primavera, was entirely French in feeling, though Italian in execution. He worked in France from about 1568 to 1585, and interested them especially by his portraits of Queen Elizabeth and Mary Stuart. Whether he did these from life they did not know, but there was no doubt that they were contemporary. Thanks, however, to the demonstrably erroneous condemnation of the Mary Stuart by a writer on her portraits, this, one of the most valuable pieces of evidence, had been ignored by later students of the subject. In the first half of the seventeenth century the leading medallist in France, and indeed in the world, was Guillaume Dupré, one of the most astonishingly skilful craftsmen that the art ever produced, but lacking in ideas.

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LECTURE VI.—MEDALS IN ENGLAND AND SCOTLAND.

In his final lecture of the course Mr. Hill said that English or Scottish medals of the Renaissance period were seldom the work of native medallists. There appeared to be a few products of native art in the time of Henry VIII. The medal commemorating the recognition of Henry as Supreme Head of the Church was English. So possibly were the medal of Anne Boleyn and that with the portrait and arms of Thomas Cromwell, dated 1538. The coronation medal of Edward VI. was obviously by the same hand as the Supreme Head of the Church medal of Henry VIII., and documents suggested that Henry Basse, chief engraver to the mint, must have made them both. Under Elizabeth they had a number of interesting and sometimes puzzling pieces, of which there was no reason to doubt the English origin. The earliest appeared to be by Derick Anthony, who had been appointed chief graver in 1551. Queen Elizabeth's recovery from smallpox in 1572 was commemorated on a medal, and probably about the same time was the Phœnix badge, on which the happiness of the Arabs whose Phœnix is renewed by death was contrasted with the misery of the English whose Phœnix was the last of her line. The reference must be to the dangers, such as smallpox and the Duke of Norfolk's conspiracy, which beset the childless Queen. The defeat of the Spanish Armada in the next year naturally bulked largely in medallic history. The handsome, almost barbarously magnificent medals with the bust of the Queen, and an ark riding on the waves or a bay tree on an island struck, but uninjured, by lightning, evidently alluded to the deliverance of England from the Spanish peril; but whether these were official rewards presented by the Queen to those who won her battles for her seemed to be quite uncertain, in spite of a vague tradition to that effect. The best medallic portrait of James VI. and I. was probably that struck in 1604, and attributed to Hilliard. But the most remarkable medal portraits of the period were those engraved by the Dutch artist, Simon van de Passe, on silver plates, representing members of the Royal Family and certain private persons. Apart from the extreme delicacy and beauty of these pieces, they were remarkable for the reason that, although, as it can be proved, they were each separately engraved, it needed a microscopical examination to discover any difference between them; so much so that it had long been maintained that they were struck from dies. The leading medallists of Charles I.'s reign were of French birth. Nicholas Briot (in England, 1625-46) had a considerable influence on the development of die-engraving in this country. Claude Warin made two medals of Englishmen—John Prideaux, Professor of Divinity at Oxford in 1638, and a posthumous medal of Thomas Bodley in 1646. But very much finer than these, which, if accomplished, were rather dull, was a series of Carolean portraits, some signed "Warin," others unsigned, which had been attributed by some to Claude, by others to the far more brilliant Jean Warin. Abraham and Thomas Simon (born about 1622 or 1623) seem to have worked a good deal together. Thomas's most famous production was the trial crown, on which he petitioned Charles II. to prefer his work to that of the Dutch artist the King was importing; but the wonderful portraits of various celebrities of the period, such as General Monk or the Earl of Southampton, cast and chased, signed sometimes by Abraham, sometimes by Thomas, provided the brothers' real claim to rank as great artists. Their achievement represented the culmination of the art in this country.

Medals in Scotland.

In Scotland two of the most important medals connected with the history of the country found their place artistically in the series of the Low Countries and of France—the medals of Archbishop Schevez and Primavera's Mary Stuart. What must have been an interesting and unique medal of James III., once let into a reliquary at Amiens, was destroyed during the French Revolution. There was a medal of James IV., which was in existence before 1620, but hardly, to judge from its style, much earlier. The Scottish series really began with the struck coin-like medals of John, Duke of Albany, with his arms and the Holy Dove. These pieces were made, probably in this country, out of gold from Craufurd Moor. After this there was a gap until the reign of Mary. A beautiful little piece with her portrait, dated 1553, was probably a pattern for a coin, not a medal, and seemed to have been struck in Paris, though John Acheson may have made the dies. Then came various pieces commemorating the Queen with her husband, François II. In 1560 they had a medalet which seemed to be a sort of half-concealed manifesto of the Queen's claim to the English throne. This, too, might have been made in France. The little medal of George Lord Seaton and his wife Isabella was, however, made in Scotland by Michael Gilbert, Queen Mary's goldsmith. They had also, in 1565, a rudely fashioned medal commemorating the marriage with Darnley. Another marriage, that of James VI. with Anne of Denmark, was recorded on a piece which had a quaint effect, owing to the fact that the man who made it had used a much larger scale for the head of Anne than for her husband's. After the union of the crowns there was little of purely Scottish interest, except the Scottish coronation medal by Briot. An anonymous medal of a lady, with the pathetic legend, "O God, great patience in that I suffer wrang," "Quho can compare with me in greif, I die and dar nocht seik releif," and "Hourt not the heart quhois ioy thou art," has been supposed, without due evidence, to represent the unfortunate Arabella Stewart, who died in the Tower of London in 1615. In its expression of personality breaking out through anonymity, this medal might fitly close this sketch of the medallic art during the Renaissance. The medallist stood or fell by his power of expressing personality; that was the test by which they must judge his style and his methods. The medal, small and insignificant as it might seem, is, because of the severity of the laws that govern its construction, a most admirable criterion of taste and means of training the eye for the criticism of art in general.

MILITARY EMERGENCY HOSPITAL CONSTRUCTION.*

By A. SAXON SNELL, F.R.I.B.A., F.R.San.I.

To meet the emergency of war the War Office has always reckoned upon making use of spare accommodation in voluntary and public hospitals and infirmaries, and, of course, in its own service hospitals. In addition to these, arrangements have been made for requisitioning a large number of public buildings, schools, &c., for conversion as temporary hospitals. Other countries have made similar arrangements, and it is quite in accord with their policy of thoroughness that the Germans have, in many of their public schools, made special arrangements for converting them into hospitals. In addition to the conversion of existing buildings, the War Office has also contemplated the erection of temporary emergency hospitals, for which purpose detailed plans have long since been prepared. Such buildings could be erected at short notice, very quickly, and at small cost.

The scale of the present war is so large that many civil architects have been called in to assist the War Office in carrying out temporary hospital schemes. It was inevitable, however, that many of the plans showed considerable variation from the War Office model, both as regards planning and construction, although, of course, in every case such plans had to be submitted to and approved by the War Office. The variation in planning is instructive and interesting.

One of the first of these hospitals was the First Eastern Hospital at Cambridge, which is remarkable for being designed upon the open-air principle. It represents an act of faith and courage on the part of those who initiated it, amongst whom I may mention Professor (now Colonel) G. Sims Woodhead and Colonel ——, the officer commanding. It was designed and carried out by Mr. Charles Skipper, of Cambridge.

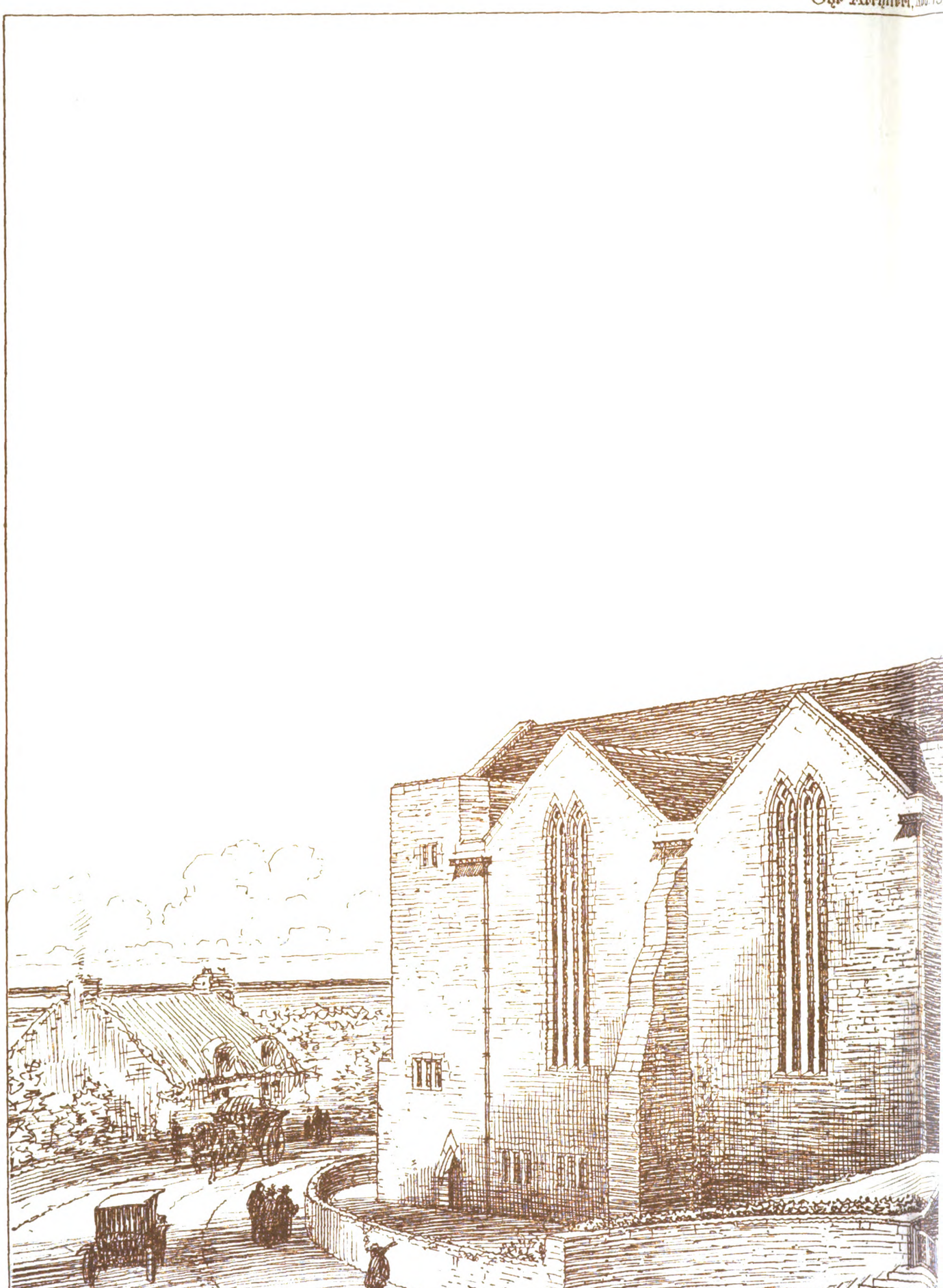
Open-air wards for use both in winter and summer are by no means new in this country. For instance, Dr. Philip Boobbyer, Medical Officer of Health at Nottingham, has had several in his district for a number of years. In these every kind of disease has been treated (not excluding pneumonia) winter and summer. The value of roughly improvised buildings and sheds which are practically open-air is referred to by Miss Nightingale, Dr. Brocklesby, Sir John Pringle, and, as far back as 1758, by Dr. Guy. The nucleus of these temporary hospitals is generally an existing hospital or a house, the permanent buildings of which are of considerable value as administrative offices or staff quarters. Methods of construction vary. The War Office model plans provide for a framing of timber, lined on the

* Abstract of a Chadwick Public Lecture delivered at the Royal Society of Medicine, 1 Wimpole Street, W., on Nov. 10.

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SAINT JOHN THE EVANGELIST AT

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SAINT JOHN THE EVANGELIST A

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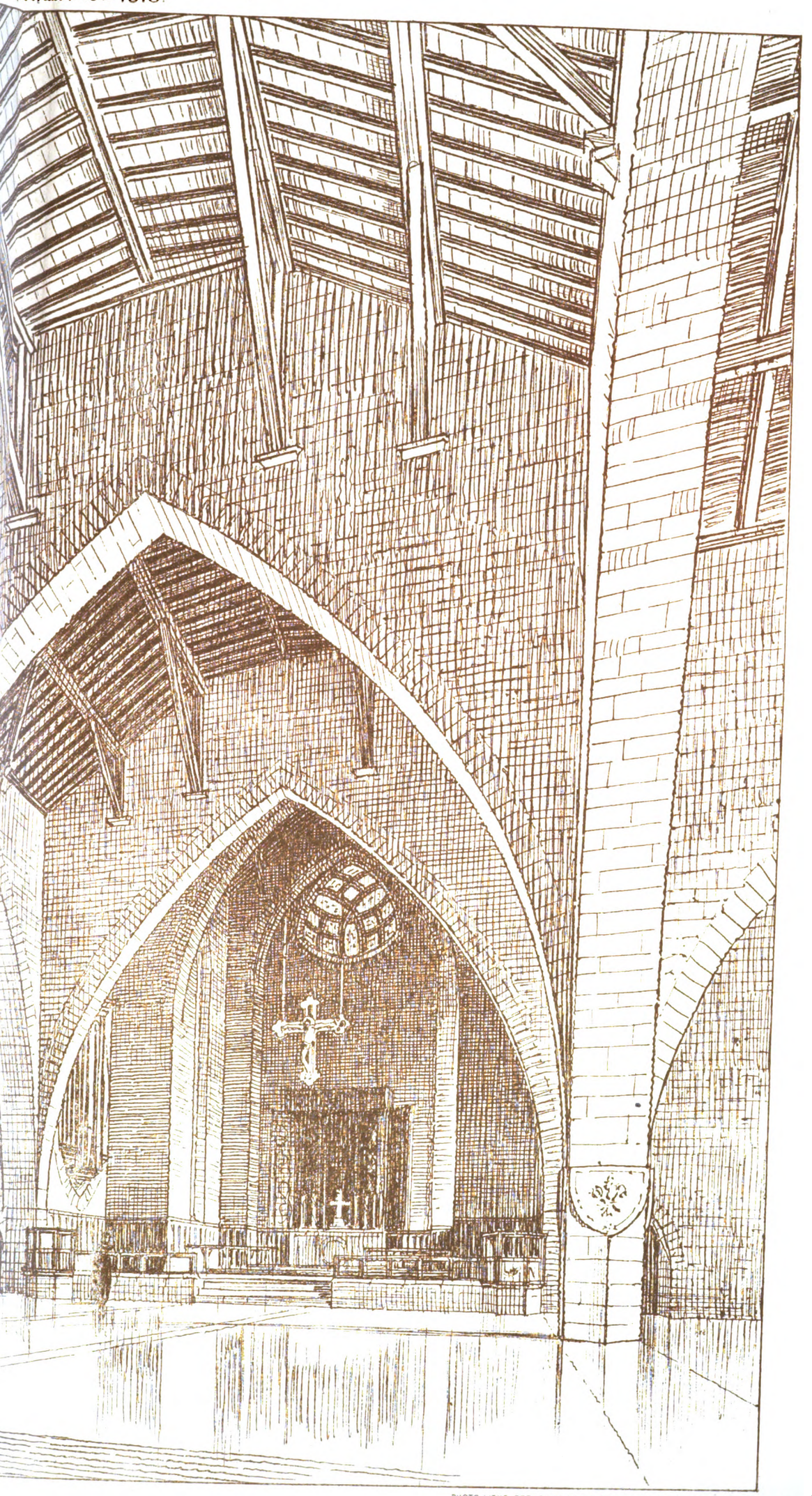


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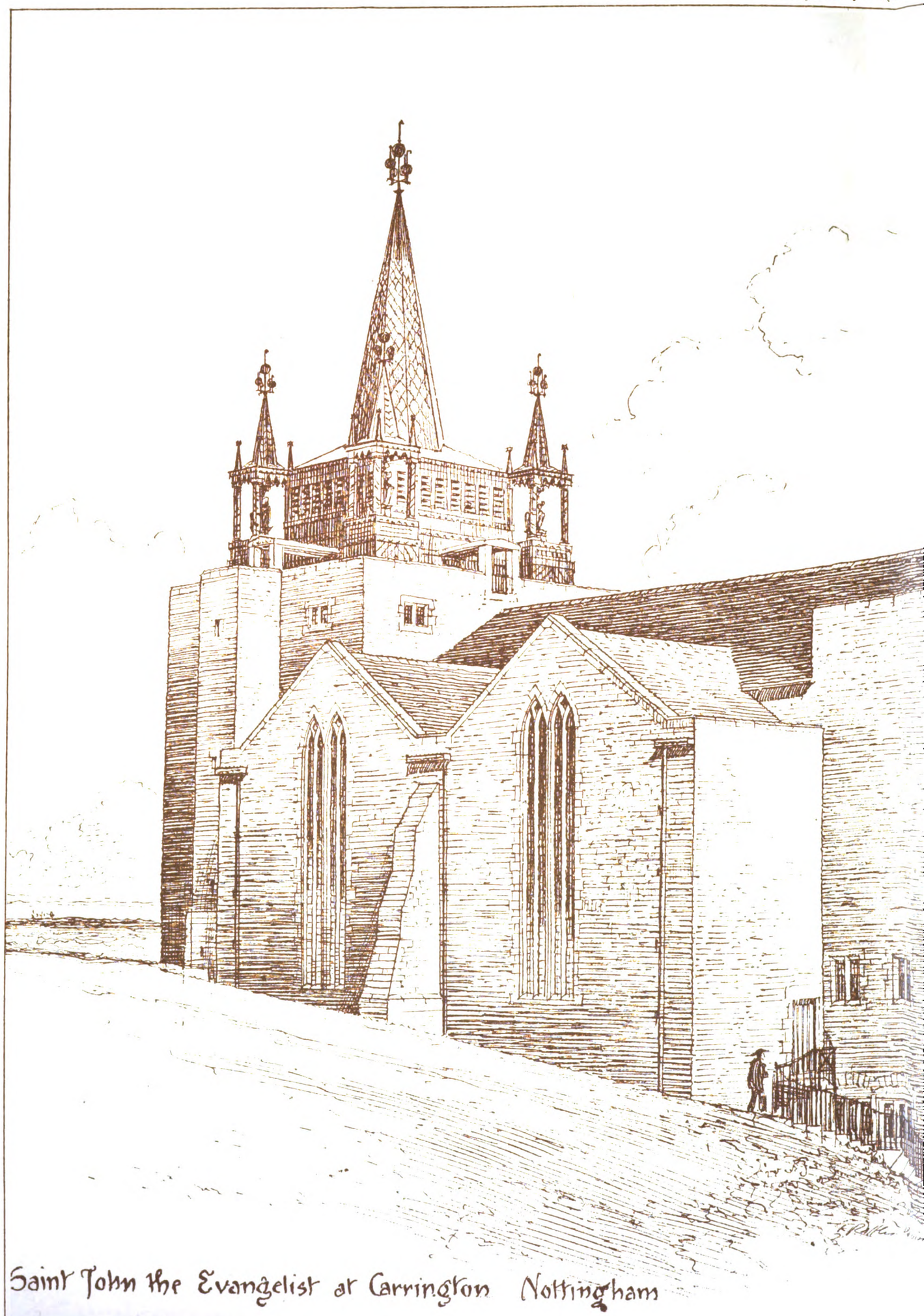
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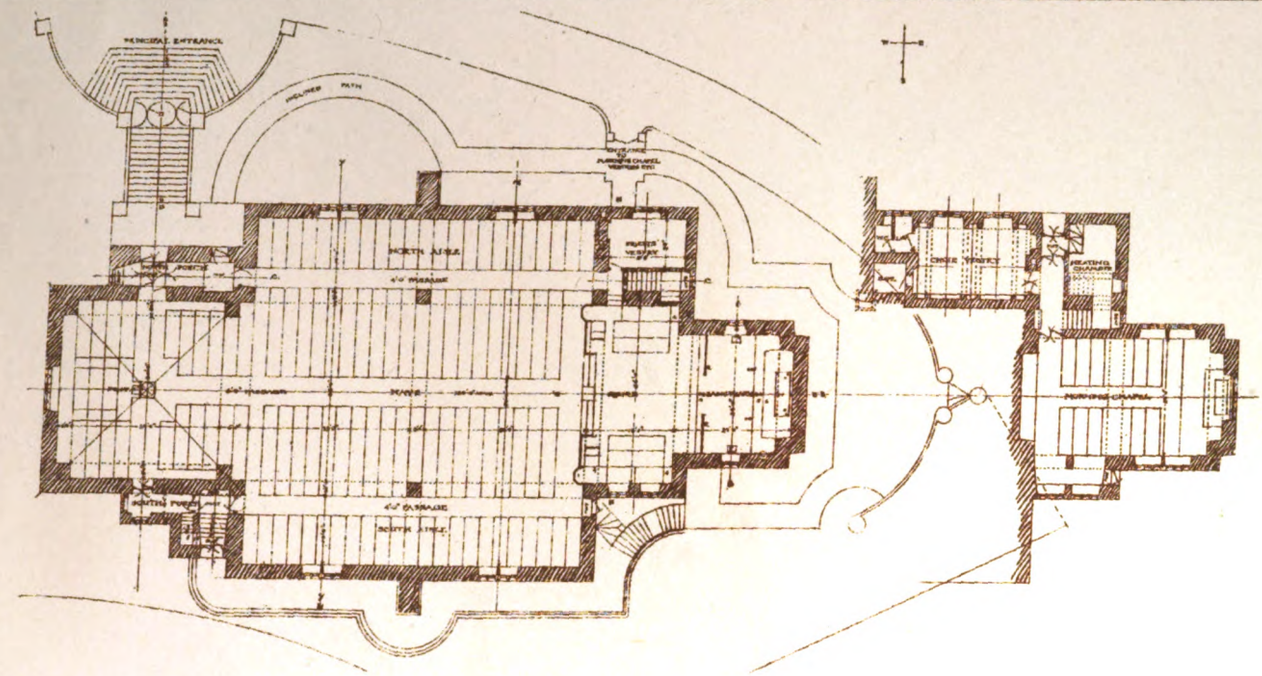
Saint John the Evangelist at Carrington Nottingham

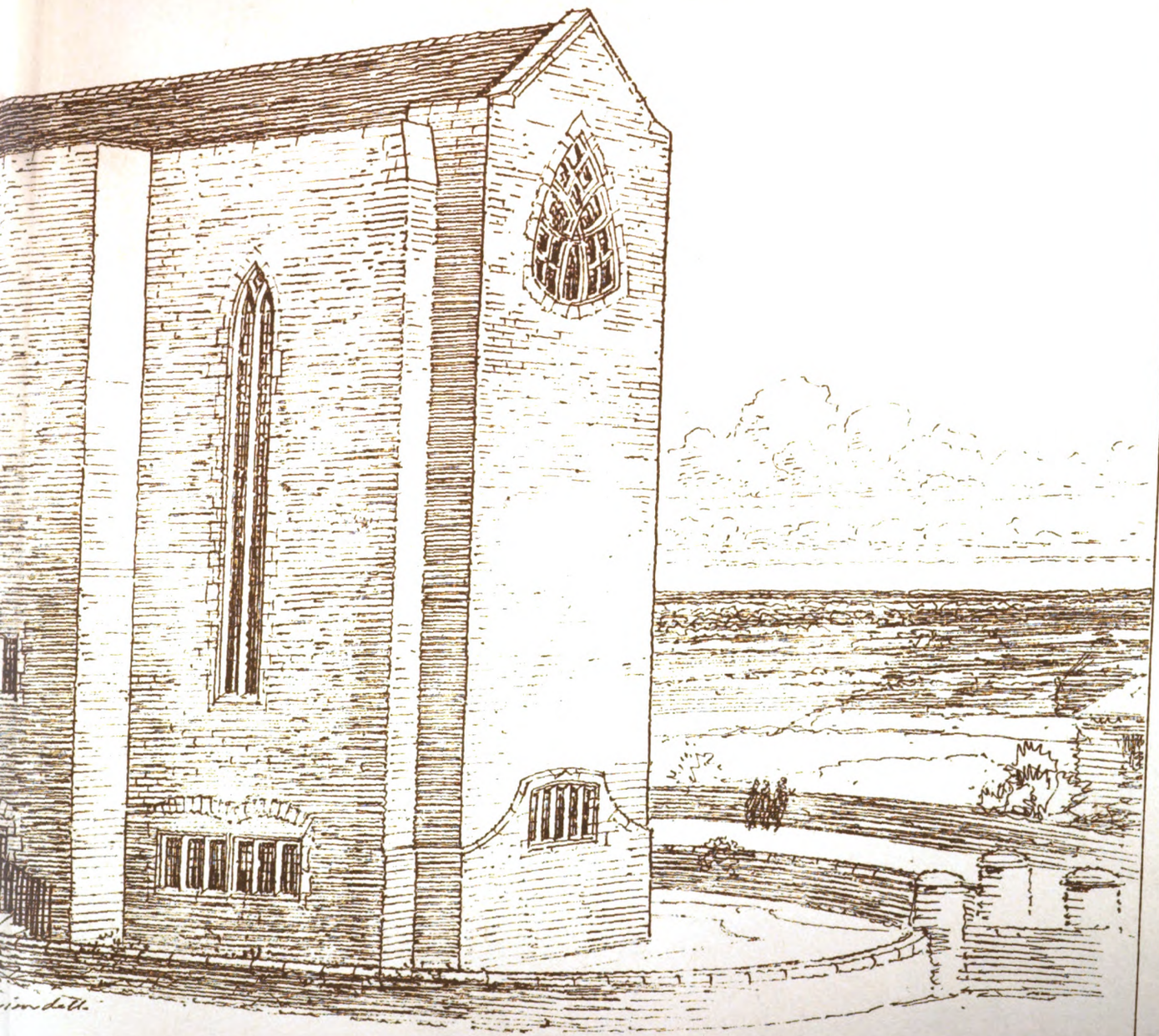
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SAINT JOHN THE EVANGELIST AT C

MR. W. CURTIS GREEN, F.R.I

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W. Curtis Green Archt
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inside with plaster slabs and on the outside with corrugated iron; roofs are also finished with corrugated iron. Timber framing lined inside and out with asbestos sheets is another method of construction, and these buildings are more slightly and no less fire-resisting. Ruberoid is used on the roofs. The flooring is of tongued boards and wood joists. At Leicester the walls are of brick and the floors cement. At Shorncliffe Mr. White has covered his floors with linoleum, than which there is no more satisfactory ward floor.

Heating in closed wards is generally by means of steam pipes and radiators. At Shorncliffe anthracite stoves are used. In open-air wards no heating whatever is provided. Nevertheless, a few open fires are desirable, and in the later buildings at Leicester Mr. Perkins Pick has provided one at the end of each ward in a partly enclosed day room. They are appreciated for the appearance of comfort, and they provide also for the nurses some means of warming their hands previous to changing dressings, &c. Electric lighting is general throughout.

In these buildings it is not usual to observe any meticulous care in the rounding of internal angles and in the avoidance of dust ledges. Even the sinks and lavatories are generally supported on rough wood frames. The buildings are, of course, meant to be temporary; they are built quickly and at very small cost, and these matters are incompatible with refinement in detail. Nevertheless these refinements cannot safely be ignored for isolation hospitals and in operating theatres.

One matter—and it can scarcely be called a refinement—is rather generally ignored—*i.e.*, a layer of concrete over the whole surface of the ground of the building. It may be of less importance if the building is raised a few feet above the ground so as to provide a clear sweep for the air, otherwise, especially in enclosed wards, ground air is bound to find its way upwards, and the quality of ground air is variable and not to be ignored with impunity.

The cost of these buildings varies greatly. The War Office model plan is estimated between £60 and £70 per bed, but the Cambridge, Canadian, and Glasgow Hospitals were about £25 per bed. At Leicester the ward blocks only were estimated at the cost of £15 10*s.* per bed.

HOUSE BUILDING: PAST AND PRESENT.—II.*

By M. H. Baillie Scott.

In considering the houses of the past in this country, I want to pierce deeper than the mere external forms in which building expressed itself from time to time. I do not propose to speak of Early English work, or Decorated, or Perpendicular, or of tracery and pointed arches. All this morphology of the building periods is extremely interesting, but not of great value unless we can get from the work some conception of the spirit that informed it. The building art is, like other arts, the medium for the expression of the individual or combined group of individuals who produced the work. What they sowed we may reap, no more and no less, and the spiritual appeal of a building represents the sum of the spiritual energy put into it by its builders—the heart inspiring and the brain guiding the dexterity of the hand. I give this trinity of factors in the order of their importance. The most vital matter is the inspiration, the divine spark in the work; the brain gives rational guidance, and the hand is the medium of expression. If some great thought is seeking expression, the readiest and simplest language is the best. The whole tragedy of the development of any art lies in the pride of knowledge and skill, in mere proficiency for its own sake, which reduces the whole art to the level of an acrobatic performance. The art of building in the past divides itself naturally into three periods:—

First, the craftsman period, extending from the earliest Gothic times, through the Middle Ages up to the time of the Renaissance.

Second, the scholar period, dating from the Renaissance till about the end of the eighteenth century.

Third, the shopkeeper period, when the commercial ideals of the nineteenth century found their expression in building.

There is always something childlike in the best kind of art, and one of the best definitions of art seems to me the one which describes it as the survival in man of the play instinct of the child. In the craftsman period we may compare the builders to a happy, eager band of children building castles on the seashore. They are working for the best of all motives—to please themselves. And so all goes well with them and their work. And then we may imagine the coming of the Renaissance in the person of some pompous and dignified professor, who engages to teach these happy builders how their work ought to be done according to classic precedents. The children, somewhat crestfallen, are not unwilling to try a new game, and continue to extract some amusement for a time with quaint variations on the classic themes; but they gradually realise that the old happy holiday work is over, and lesson time and grammar has begun. But still they continue to find some pleasure in the school work which has been thrust upon them.

Then comes along the shopkeeper, who points out to the professor and his pupils that all this working for fun, as the children did at first, or working according to rules set by the professor, is really not what is required at all. It isn't practical, and it doesn't pay. No; they must work for his profit, and nothing else really matters.

And so these children, who were once happy and free, first become scholars and now have become factory hands. Through endless hours of dull labour they do again and again the same tasks.

If the methods of the old builders are here advocated, it is not because they are the old methods, but because they are the right methods; and, although the final result of their application will lead to a resemblance between the modern house built in the old way and the old house itself, that is merely because in both right principles have been followed. This is quite a different thing from servile imitation, or the unintelligent reproduction of characteristic features of the periods which we find displayed in the showrooms of the modern cabinet-maker. The Tudor room, with all the proper appointments of the period, including a suit of armour propped up in the corner and imitation beams in the ceiling, is no proper setting for modern life, and must necessarily appear an affectation to any sensible person. Many of the simpler features of the Tudor house may, indeed, be put into the crucible of the mind and distilled into a new harmony, subject to those necessary restrictions that the realities of modern life impose.

If the mediæval building age may be considered as the daytime of the arts, we may continue the figure and think of the breaking up of the craftsman period as a time having the ripe and mellow beauties of the sunset. In the early part of the eighteenth century the last warm afterglow had faded from the sky, and after that nothing was left but the cold greyness of the later Renaissance, eventually succeeded by the darkness of the Victorian era, the true dark age of the building art. Since then, in modern times, we have had various little local dawns, but no new day has yet arrived on any comprehensive scale in the building world.

Of the three periods of building, then, that of the craftsman seems to me incomparably the best. The art of building during the craftsman period was the central and dominant art of the world, a kind of universal language expressing the ideals of the nation as a whole. To the simple, practical minds of the old builders it was sufficiently obvious that the proper function of art was in the creation of a world of buildings. Art was not a thing to be shut away in galleries and museums, but its proper sphere was a much wider one than that. It was no less than the adornment of the whole world in which we live. Every village and every town was an artistic creation. Nothing we have done since, nothing we can do now, is to be compared for a moment with the glory of that building art. It was a living force claiming for its expression the organised and combined efforts of a whole community of craftsmen. So intimately blended is the spirit of the old buildings with their natural surroundings that it would seem as if the same power that created the one had also inspired the production of the other, and so we find throughout the length and breadth of the land the old builder with his magic touch has created new beauties everywhere, in village and town, in church and manor, in farmhouse and cottage.

The virtue of building as an art does not lie in any particular outward forms. Tracery, cuspings, Corinthian columns, all the accumulated architectural lumber of the ages, are quite useless to us in themselves. The only thing that really matters is the spirit which inspires the producers of the buildings. Given a group of craftsmen, working not only for material gain, but inspired by some noble ideal, and their work, in spite of themselves almost, will reveal to the discerning eye something of the quality of the spiritual force which created it. The old Trades Guilds were combinations of craftsmen for the purpose of building,

* Abstract of the second of three lectures delivered before the Royal Society of Arts, and printed in extenso, with illustrations, from houses designed by the author, in the Society's "Journal."

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and the most striking fact about them was that the bond which united them was not a money bond. In these brotherhoods of workers there was nothing equivalent to our system of capital and labour—of masters making profits and labourers taking wages. It is true that the material interests of the craftsman were looked after by the Guild. The livelihood of the members was secured whether they happened to be working or not. They were free then to work not merely to live, but for the honour and glory of their Guild. That, and not mere cash payment, was the bond which held them together. Can we wonder, then, that their work was something radically different to modern building? The value of the knowledge they accumulated and bequeathed to their successors was of a kind which in these days of book learning we can perhaps hardly appreciate. It was instinctive rather than reasoned, and was a thing too subtle to be formulated by any words. Until we can get work done again in the old way, and enlist the hearts and heads, as well as the hands, of every workman in our service, it is idle to hope that we shall produce any sort of building or architecture worthy of the name. Men do not gather grapes of thorns, or figs of thistles, and the ugliness of modern building is the inevitable and natural result of the ugliness of the methods that produce it. In a word, while the normal modern house is the confessed symbol of greed of profit, the old one stood for delight in work. And this delight in work was fostered by the guilds, and there was no outside power then to step in and say, "No, you are to work for my profit, and not for your own delight."

I have no wish to pose as a reformer, and I have no "Morrison's Pill" to cure the ills of the labour world; but I cannot help wishing that, when we once more turn our minds to the arts of peace, some organisation of labour, modelled on the old Trades Guilds, may be attempted as the first step to secure some real revival of the art of building. In such organisation the architect must take his place, not as an alien superior person, but as one so intimately associated with labour that he can interpret its dreams in terms his fellow-workmen can appreciate and understand.

If we examine sympathetically an old building of the craftsman period, we shall find that the whole of the fabric seems to be saturated with a kind of human warmth of life, and the unconscious art of it does not lie in any cleverness or feats of skill, but in a glowing, warmhearted vitality which seems to permeate it. The whole technique of its workmanship differs materially from modern practice, and such merits as it possesses depend to no small extent on the way in which the work is done.

The great principle which seems to have been unconsciously divined by these old builders is that each material used has its peculiar qualities, and in its handling these qualities are to be recognised and developed. Thus the bricks in the walls are patently made of burnt clay—that is to say, in their surface and outline they have the kind of surface and outline which belongs to burnt clay and to no other material, and their life history is still further recorded in the varied clouding and colouring of the fire. And the bricks are sensibly arranged without any unnecessary time wasted in making them exactly regular. The eye of the workman guides his hand without any mechanical aids, and so the work becomes a human document—becomes almost as characteristic as handwriting. And then when we consider the timber we shall find the same discernment in its treatment. In a material which has a distinct grain, and which gives us a distinct and characteristic surface when chipped with an adze or chisel, it seems that the real qualities of the timber can best be developed by such workmanship. Again, in the treatment of wrought iron we find the forms of the metal chiefly valuable as illustrating the fact that though now cold and hard, in passing through the fire it was soft and ductile. In the plaster the same hint as to character will be given, and it will appear like a lava stream which has flooded the walls, flowed round the timbers, and so at last became frozen. And all the subtle differences of texture in surfaces and outline arising from this kind of craftsmanship will come about, not for the love of irregularity for its own sake, but for the sake of expressing the individual character of each material. Anyone who has engaged in any kind of craftsmanship must have experienced that kind of will-force which a material, such as timber, for instance, possesses. You may lead it gently in one direction, but only by force can it be made to go in another. The craftsman, then, can either impose his will relentlessly and crush the individuality of the material with a mailed fist, or he can allow the expression of its character.

All these qualities of old work are not difficult to obtain. They arrive automatically if work is done simply and naturally. To smooth away all the character from a piece of oak till it might be mud, or cheese, or anything, is quite a tedious process, and, indeed, is generally the outcome of pride in command over tools—the pitfall which seems always to await every school of craftsmanship. We must give up all such pride of mastery; for good workmanship, like good government, must seek to understand the true character of its subjects, and yield room for the due expression of that character. If, then, we consider the craftsman as the ruler of a kingdom, in which each material is given its appointed task and allowed in the doing of it the proper expression of its qualities, we shall find the cumulative result in the building, of little isolated tasks rightly done, beyond all our expectations.

It is difficult to put into words the effect of an old house of the craftsman period on the mind of the sympathetic observer. We may be moved to delight by pictures and all the stored treasures of the past to be found in our museums. We admire all these things, but perhaps go away from them with a confusion of the mind and a headache. We are dimly conscious that there is something wrong, and that art should not be jumbled into galleries and museums, but form the proper setting of our lives. But in the old house we find the real thing that our fathers knew. We are enveloped at once in an atmosphere of peace. We are snatched away from transitory frivolities and all the superficial unrest of modern life. The walls seem to breathe out healing virtue, and as we pass from room to room we recognise that here indeed is the mistress art, compared with which all other arts are vain.

In leaving the consideration of the craftsman period for that of the scholar period at the time of the Renaissance, we are taking the first step on the downward path which ended in the lowest depths of the Victorian era.

In the craftsman period house building was essentially a creative art, and all its forms were the expression of definite functions. A beam was placed to carry weight, a buttress to resist pressure. But when the Renaissance introduced to our builders all the features of classic architecture, a new principle of imitative art was introduced. At first the impetus of the tradition of the guilds prevented any serious damage, and the quaint use of the new forms by the craftsman of England was not without its charm; while the prime scholarship of the style of building thus developed was saved from dullness and pedantry by the human qualities of the earlier tradition. But still, by slow degrees, the whole business of building became hardened into formula; the creative artist gradually became specialised in the accessory arts, and the downfall of building as an art was complete. In the buildings of the craftsman period all the forms used were those which the creative intelligence of the builders had devised to meet the requirements of structure, without reference to buildings created for other purposes and other climates. The whole form of the plan was conditioned mainly by the building up of its component apartments in their required positions, and as the occasion demanded the building took upon itself various forms. But when the Renaissance came, and men began to look back and imitate externals, it became the custom to think of the house as a rectangular symmetrical box, in the four walls of which had to be packed the multitudinous apartments which a more advanced civilisation demanded. In the struggle which ensued, symmetry generally broke down somewhere, and it was necessary to help it out with the sham window and other devices. This kind of building was most at home in the town, where the rectangular outline of the plan was logical; but in the country the rambling and irregular forms of the earlier buildings were more appropriate and more in harmony with their natural surroundings. The main drawback to the Renaissance work, however, was that it destroyed the creative initiative of the craftsman. All the realities of the building became degraded to the dismal science expounded in the current text-books.

Once the habit of copying foreign buildings was established, it quickly tired of the buildings of Rome and passed on to Greek art. Then Gothic work was discovered, and duly imitated in its turn. And so our architects passed from style to style with growing dissatisfaction. Each new adventure became in turn old-fashioned, and it was always the latest enterprise which was going to be the right thing at last. But still the glory that was Greece and the soul of Gothic art alike proved too elusive to be captured. Each belonged to its own time and to no other, and found no place in the modern world. The great glory of Greek and Goth was that they created Greek and Gothic buildings. It

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was nothing to the credit of the modern architect to imitate these creations. He might as well have imagined he could emulate Shakespeare by copying a page from one of his plays.

And while our architects were busy with all these futilities, gradually whatever practical structural ability we were producing was specialising itself in engineering, while artistic genius was devoting itself to painting and sculpture. The building art became drained of its best blood, and the production of houses, the most vitally important function of the community, became, as it remains to-day, the almost exclusive field of the speculative builder. And as in the Victorian era the last breath of the earlier tradition expired, the English house touched its lowest depths. We have not to go far to find plenty of examples of these houses, with their dark basements and lofty reception rooms—harsh, cold, and repellent—without one touch of human handicraft. To follow the progress of house building through the nineteenth century is a sorry task. One is reminded of the old story of the tower of Babel, when the building was obstructed by a confusion of tongues. On the one hand was the architect, with his enthusiasm for reproductions; on the other, the craftsman without any enthusiasm at all. Architect and craftsman lived in different worlds, and spoke different languages; and so the architect always found in some disconcerting way that his modern house, built on the model of the old, was never the least like it. The old was always better, because it was produced under entirely different conditions, and was a spontaneous and unique expression of its time.

I can liken the buildings so produced to nothing better than waxworks. They reproduced external forms, but could not supply the vital spark. The builders went through the motions of building, and gave us all the correct external forms; but they could not give us the one thing needful to make their dry bones live.

ROLL OF HONOUR.

The subjoined list of Architects, Architects' Assistants and Students serving in His Majesty's Forces is made up of additions and corrections to the names which appeared in "The Architect" of October 8, 15 and 22.

Abercrombie, S.	1/14th Argyll and Sutherland Highlanders.
Allner, J., 2nd Lieut.	Wilts Fortress, R.E.
Ayre, D. W., 2nd Lieut.	Kent Fortress, R.E.
Baker, C. H., Lieut.	Royal Engineers.
Barrow, J. W., 2nd Lieut.	11th Batt., East Surrey Regt.
Barrow, S. E., Lieut.	5th Batt., K.O.R. Lancaster Regt. (Died of Wounds.)
Bartlett, Percy	Anti-Aircraft Corps.
Batley, J. G.	Royal Flying Corps.
Battle, A. N., 2nd Lieut.	K.O. Royal Lancaster Regt. (Killed.)
Baverstock	
Bayley, T. J., 2nd Lieut.	Wiltshire Regt.
Belcher, A. L., 2nd Lieut.	3/2nd London Division, R.E.
Carswell, J. J., 2nd Lieut.	10th Batt. Cameronians. (Killed.)
Cholmeley, G. H., Lieut.	London Rifle Brigade. (Killed.)
Christic, J. A. C., Capt.	Rhodesia Field Force.
Clouting, C. E., 2nd Lieut.	1st Batt., East Kent Regt. (Military Cross).
Cobb, R. S.	160th Infantry Brigade, 53rd Div.
Cohen, 2nd Lieut.	Royal Engineers.
Crombie, W. F., Capt.	5th K.O.S.B. (Wounded.)
Cubitt, H., 2nd Lieut.	Kent Fortress, R.E.
Dangerfield, P., 2nd Lieut.	1st Batt., The Buffs.
Dean, W., 2nd Lieut.	Kent Fortress, R.E.
Dening, S. J. C.	Inns of Court O.T.C.
Dircks, L. A., Lieut.	18th London Regt. (Wounded.)
Eaton, S. E.	O.T.C.
Elston, Jas.	Artists' Rifles.
Emery, Burkett J., Lieut.	2nd Royal Warwicks. (Missing, believed Killed.)
Evans, H. G.	Royal Engineers.
Ferguson, N. S.	O.T.C. (Died.)
Ferguson, Wm.	35th Canadian Light Infantry.
Ferriera, Lieut.	
Ford, Lawton S., 2nd Lieut.	3rd Batt., Royal West Surreys.
Fromant, E. G. D.	(Killed.)
Gibson, E. H., Sub-Lieut.	R.N.V.R. (Died of Wounds.)
Gostling, W. B., 2nd Lieut.	11th Batt., London Regt.
Groves, F. N., Lieut.	Monmouth Regt. (Killed.)
Heathcote, Edgar, Capt.	6th Batt., Sherwood Foresters.
Hemingway, Ralph	(Killed.)
Hill, E. F., 2nd Lieut.	Berkshire Yeomanry.
Holyoak, F.	Royal Engineers.
Hunter, G. E., Capt.	Northumberland Fusiliers. (Killed.)
Hutton, J. G., Corpl.	London Scottish. (Killed.)
Hyde, Lieut.	
Isaac, W. J.	London University O.T.C., Engineer Unit.
Jardine, H. S., 2nd Lieut.	3/1st London Field Co., R.E.
Javes, Sergt.	
Johnston, A. le B., 2nd Lieut.	2nd Dorset Regt. (Invalided.)
Kenyon, A. W., 2nd Lieut.	Royal Engineers.
Keys, P. H., 2nd Lieut.	Royal Engineers. (Wounded.)
Lee, Stanley	R.G.A.
Lowbridge, G. C., 2nd Lieut.	3rd North Midland Div., R.E.
MacKay, Wemyss	7th Batt., Canadian Expeditionary Force.
Mackenzie, G., Capt.	3rd Batt., Seaforth Highlanders.
Mackenzie, J.	R.N.A.S.
Maddock, R. H., Capt.	2nd Batt., Royal West Surreys.
Mansfield, R. E., Sapper	Royal Engineers.
Marley, W. H., Corpl.	R.F.A. (Killed.)
McCorquodale, G. M.	Artists' Rifles.
Meadows, S. Douglas, Lieut.	204th Co., R.E.
Messer, Arthur A., Capt.	G.R.C.
Metson, G., Capt.	19th Batt., London Regt.
Mettham, J. A., Lieut.	Royal Engineers.
Morrey, Percy	3/1st Batt., East Lancs., R.E.
Newbery, C. J.	Royal Fusiliers. (Killed.)
Newcombe, P. C., Capt.	8th Durham Light Infantry.
Pearson, E. W., Lieut.	3/6th West Yorks Regt.
Ravenor, Lieut.	
Rees, F. W., 2nd Lieut.	Royal Engineers.
Rowe, A. Vernon, Capt.	Reserve Territorial Batt.
Savege, C. F.	London Scottish. (Wounded.)
Sharp, G. L. T., Lieut.	47th Batt., Canadian Expeditionary Force.
Slater, J. Alan, 2nd Lieut.	R.F.A.
Smith, V. C. E., Lieut.	12th Batt., Hampshire Regt.
Streatfield, G. E., Capt.	Royal Engineers.
Stuart, C. L., 2nd Lieut.	3/7th Black Watch.
Thomas, Lieut.	
Thomson, G. Ramsay, Lance-Corpl.	12th Batt., Royal Fusiliers. (Wounded.)
Tubbs, Cyril B., Capt.	
Watson, B.	Artists' Rifles.
Watt, J. D., 2nd Lieut.	2nd East Surreys.
Wilkie, W. F., Capt.	4th Black Watch.
Wingate, Alex., 2nd Lieut.	9th Glasgow Batt., H.L.I. (Killed.)
Winn, T. J. R.	30th Royal Fusiliers.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Architects' War Service.

SIR,—It would no doubt add to the success of the R.I.B.A. War Committee's appeal if it was assured to all rejected candidates that some badge was awarded for their patriotic offer.

Although physically fit, many of us may be debarred by an age limit, and some recompense for our disappointment would be found in an armlet or a badge.—Yours, &c.,

JOHN LEEMING.

Westminster and Bromley, Kent: Nov. 13, 1915.

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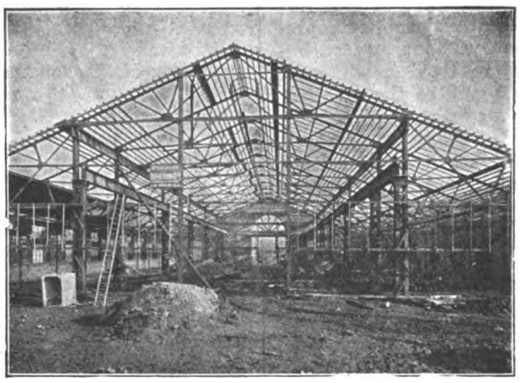
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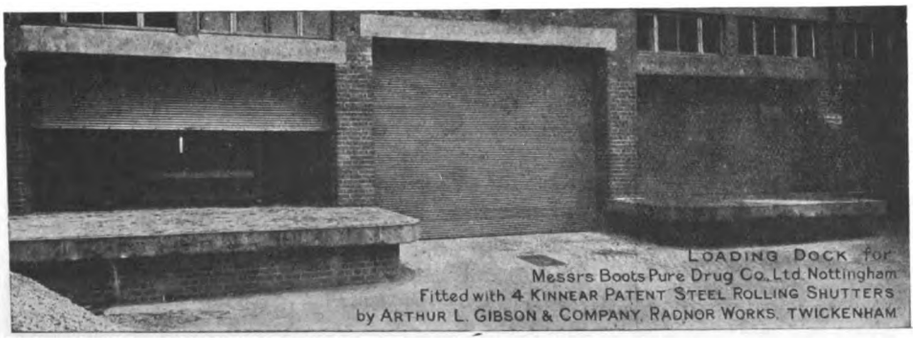
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COMPETITION NEWS.

BILTON.—A new Congregational Church is to be erected at Bilton, Yorkshire, from the designs of Mr. A. A. Gibson, of Harrogate, which were placed first in the recent architectural competition.

WILMSLOW.—At the last meeting of the Urban District Council it was reported that six schemes had been submitted in the competition for the proposed public offices, and that the assessor had awarded the first premium to Mr. J. T. Halliday, and the second to Mr. C. T. Adshead.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Aylesbury.—The "Old Plough and Harrow" Inn: additions.

Garage, for Messrs. J. H. Hawkins & Co.

Isolation Hospital: alterations.

CHESHIRE.

Crewe.—St. Peter's Church: completion (£6,000 in all).

Macclesfield.—Silk Mill, Athey Street.

CORNWALL.

Penzance.—Council school, Newlyn.

DERBYSHIRE.

Chesterfield.—Penmore hospital: extension (£6,000).

Walton.—Mission church. Messrs. Naylor & Sale, FF.R.I.B.A., architects, Smith's Bank Chambers, Market Place. Mr. Sheldon (of Baslow), contractor.

DURHAM.

Blackhill.—Proposed Baptist Church, Derwent Street. Messrs. T. E. Davidson, Son & Parr, architects, 8 Grainger Street, Newcastle-on-Tyne.

Brancepeth Colliery.—Alterations, Brancepeth Terrace, for Messrs. Strakers & Love.

Brandon.—Isolation Hospital, Sleetburn Road.

Darlington.—Council school, Woodlands Road.

LANCASHIRE.

Barrow-in-Furness.—Two houses, Park Drive, for Mr. J. J. Millinder.

Two houses, West Avenue, for Mr. W. Hatton; also Ten houses, Wheat Close Road.

Bolton.—Picture theatre, St. Helen's Road: rebuilding for the Bolton Cinematograph Co., Ltd.

Grange-over-Sands.—Garage and cottage, Allithwaite Hill, for Mr. A. Blair.

Liverpool.—Church, Wallasey. Messrs. J. L. Langford & J. H. McGovern, architects, 41 North John Street.

St. Edmund's College, Colquitt Street: proposed extension.

Garage, Knight Street. Mr. J. L. Langford, architect (as above).

Lytham.—Three houses, Nelson Street, for Mr. J. E. Myerscough.

Laundry, Woodville, for Mrs. Yates.

Oldham.—The "Rifle Range" Inn, Burnley Lane, Chadderton: rebuilding for Mr. R. Walkden.

St. Helens.—R.C. Church, Lowerhouse.

LINCOLNSHIRE.

Kirkby-cum-Osgodby.—Proposed phthisis hospital.

NORFOLK.

Downham Market.—Proposed isolation hospital.

NORTHAMPTONSHIRE.

Northampton.—Business premises, Gold Street: alterations for Messrs. P. Phipps & Co., Ltd.

Electric sub-station, Newland, for Messrs. F. Bostock, Ltd.

Factory, Barry Road: additions for Messrs. J. Sears & Co., Ltd.

House, Kingsthorpe Grove, for Mr. R. Cosford.

Workshop, 36 Wellingborough Road, for Mr. F. Utting.

NOTTINGHAMSHIRE.

Worksop.—Thirty-two houses, Kilton Road, for Messrs. F. H. & J. W. Moore.

SUSSEX.

Eastbourne.—Premises, Terminus Road, for the Prudential Assurance Co.

YORKSHIRE.

Barnoldswick.—Twenty-two cottages, Lower East Avenue. Messrs. P. Barrett & Son, Ltd., builders, Station Road.

Luddenden Foot.—Fair Lea Mills: extensions.

Richmond.—Military church, Scorton (£3,300).

One hundred houses, West Field, for Mr. J. Stobie.

York.—Fifty houses, Poppleton Road. Messrs. De Burgh Bros., architects.

WALES.

Aberdare.—Premises: alterations for the Co-operative Society. Mr. E. G. Henton, architect, 22 Cardiff Street.

Cardiff.—Fire Brigade Station, Westgate Street (£5,300).

Lampeter.—Additions, Drovers Road, for Mr. J. H. Thomas.

"Iona," Bridge Street: additions for Captain J. D. Owen.

SCOTLAND.

Dumbarton.—Balloch Hotel: extension for the Public House Trust, Ltd.

Dundee.—Post Office: extension.

Glasgow.—Buildings at Whitefield and Summertown Roads and Carmichael Street, Govan, for Messrs. Barclay, Curle & Co., Ltd.

Additions and alterations, Glenpark Street, for Messrs. T. Hinshelwood & Co., Ltd.

Machine shops, Cardonald, for Messrs. W. Beardmore & Co., Ltd.

Extension of Fairfield Works, Govan, for the Fairfax Shipbuilding and Engineering Co., Ltd.

Albion Works, Woodville Street, Govan: additions and alterations for Messrs. G. & A. Harvey, Ltd.

IRELAND.

Portrush.—Electricity generating station.

COUNT PLUNKETT, Hon. A.R.I.B.A., has been elected a corresponding member of the Hispanic Society of America, and the medal of the Society has been conferred on him.

MR. W. S. PURCHON, M.A., A.R.I.B.A., lecturer in architecture at the Sheffield University, has published as a shilling booklet a lecture on "Architecture and Efficiency" that he gave in the Firth Hall, Sheffield, in January of last year, and which subsequently appeared in the R.I.B.A. "Journal."

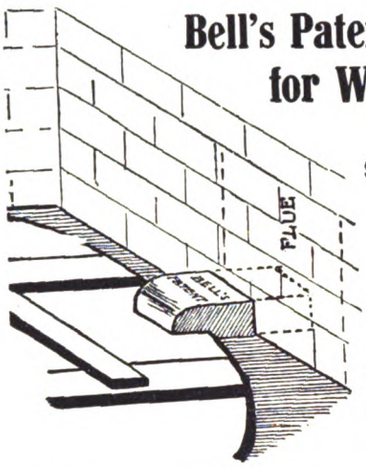
THE Sanitary Committee of the Manchester Corporation have decided to make an application to the Committee of the Privy Council for Scientific and Industrial Research for a grant of £400 for the purpose of research into the efficiency of domestic heating appliances.

LIEUTENANT SPENCER E. BARROW, who was wounded within a few days of reaching the Front while serving in the 5th King's Own Royal Lancaster Regiment, died on Tuesday last in a London hospital. He came of a well-known Quaker family, and was an Associate of the R.I.B.A. practising in Lancaster. He was hon. treasurer of the Royal Lancaster Infirmary, and a keen hockey and tennis player. He was a bachelor, and about forty-three years of age.

SECOND-LIEUTENANT ARTHUR NEWSUM BATTLE, of the King's Own Royal Lancashire Regiment, was killed in action at the Dardanelles on the 10th inst. Lieutenant Battle was studying in London at the Architectural Association School when the war broke out. He joined the Public Schools' Battalion, and was given a commission in the 9th Lincolns last December. He became attached to the Royal Lancashire Regiment in July, and was sent to the Dardanelles in September.

A CONSIDERABLE portion of the front wall on the south side of the old city of Caerwent is in imminent danger of subsiding. The local members of the Exploration Committee have decided with the consent of the tenant of the property, to erect a few strong stone supports. It would be a calamity if this fragment of Roman handiwork were allowed to follow the fate of another section of the same south wall a few winters ago, when the well-preserved surface fell bodily into the orchard adjoining, exposing some thousand square feet of the inner rubble work.

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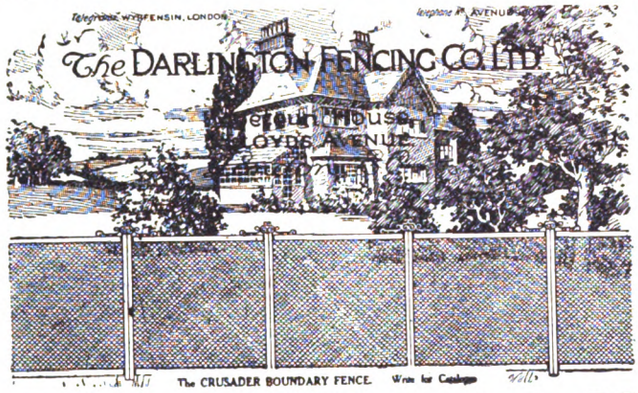
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FORTHCOMING EVENTS.

Friday, November 26.

Edinburgh Architectural Association : Public Lecture entitled "Sta Sophia, Constantinople," by Professor Gourlay, at 5 Queen Street, at 7.30 P.M.

Egypt Exploration Fund : General Meeting at Burlington House, Piccadilly, W., at 4 P.M.

Monday, November 29.

Victoria and Albert Museum : University Extension Lecture IX., on "A Comparative Analysis of French and Italian Renaissance," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Royal Institute of British Architects : Business Meeting at 3 P.M.

Tuesday, November 30.

Institution of Civil Engineers : An Ordinary Meeting, to be followed by a Special General Meeting, at 5.30 P.M.

Society for the Promotion of Roman Studies : Paper entitled "Funeral Lights in Roman Sepulchral Monuments," by Mr. G. McN. Rushforth, at Burlington House, Piccadilly, W., at 4.30 P.M.

London and Middlesex Archæological Society : Conversazione at the Bishopsgate Institute, E.C.

Wednesday, December 1.

Royal Archæological Institute : Paper entitled "Irish Cathedrals," by Mr. Ian C. Hannah, M.A., at Burlington House, Piccadilly, W., at 4.30 P.M.

Institution of Sanitary Engineers : Paper entitled "The Disposal of Sewage by Dilution : A Bio-chemical Method," by Mr. W. E. Adeney, D.Sc., F.I.C.

Thursday, December 2.

British Museum : University Extension Lecture X., on "The Ionic Order," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

ECONOMICAL BUILDING.

In considering the most economical method of construction to be adopted for any particular purpose, after paying due regard to fitness and efficiency, one of the most frequent sources of false economy is to be found in the undue importance given to initial cost alone, whereas this should never be considered apart from the question of maintenance, and the two together should in permanent structures be taken over a considerable period of time, say, fifty years. As a simple example of the importance of duly considering this question of maintenance, we may compare the case of a skylight with ordinary putty glazing with one lead glazed. In lead glazing all the woodwork is covered with lead at, say, a cost of approximately 30 per cent. more than the putty glazing, but in fifty years the woodwork may require painting fifteen times; this and re-puttying would probably equal the original cost of the skylight. It is therefore obvious that putty glazing cannot generally be defended. Again, architects, as regards construction in the various crafts or trades, are apt to be unduly fettered by tradition and what may be described as text-book methods. In the following examples a few suggestions are made for effecting economies in various directions without in any way affecting the permanent structure—nay, in some cases with positive advantage to same.

Brick footings, as now generally employed, cannot be defended. The brickwork should be carried down direct on to the concrete without any spread, and the concrete should be increased in depth by the height which the ordinary brick footings, for any particular wall, would rise. This is not as may be supposed and as contended by some local surveyors contrary to the model by-laws; it is merely substituting for brickwork cement concrete—that is to say, a stronger material. The filling in on either side of the space that the brick footings would have occupied is given in extra. The foundations are thus increased in strength (owing to the increased depth), especially in longitudinal strength, as they act as a continuous beam, bridging over any defects of the subsoil. Brick footings were originally a protection against the crushing of lime concrete, but cement concrete as now employed is stronger than brickwork, so brick footings are now unnecessary. As regards mortar it is better and more economical to use cement than lime, and the question of bond becomes of minor importance because the mortar is generally stronger than the bricks themselves.

For retaining walls brickwork will be found cheapest up to, say, 6 feet, but afterwards concrete and reinforced concrete will be increasingly cheaper the deeper the wall.

For fence walls where strength is of more importance than appearance concrete may be found to be a little cheaper.

In foundations, especially in the larger class of buildings, reinforced concrete will be found more economical and better than mass concrete, as the weight upon the ground per foot super. may by its use be frequently considerably reduced, both by using much less concrete and by spreading the weight over a larger area.

Domes, vaulting, &c., can now be so advantageously constructed in reinforced concrete that it would be hard to find a material in which similar results could be so readily obtained.

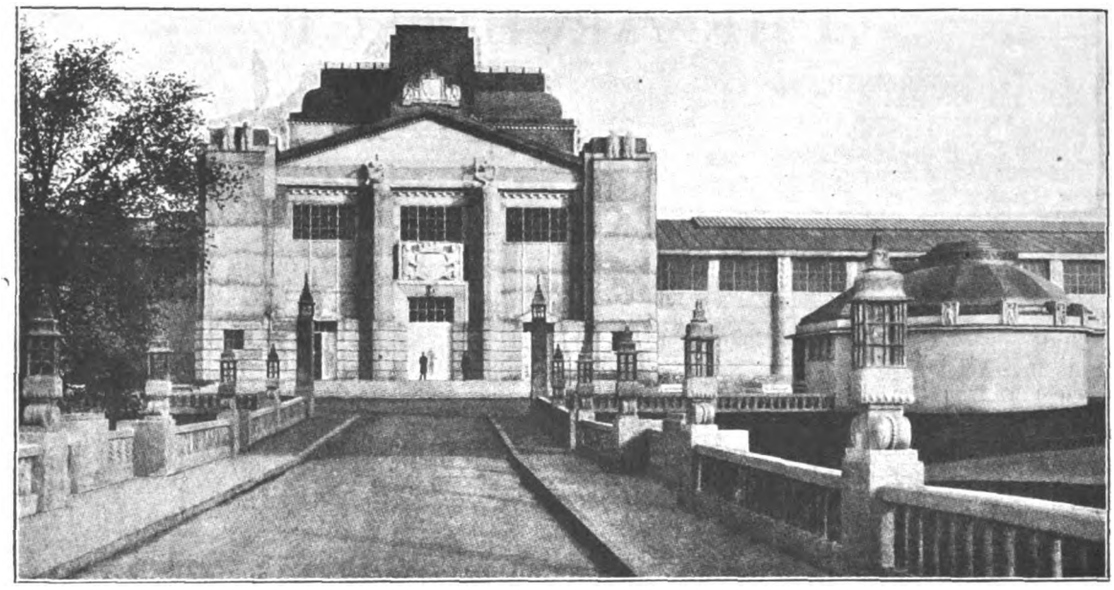
Where wood blocks are used for the floors of ground floor rooms, they are usually laid direct on to 6 inches of cement concrete. This form of flooring is generally more expensive than boarded floors, but a good alternative is to nail boarding (tarred on the underside) direct to 2 inches of breeze concrete, spread over a layer of ordinary concrete, with a cement floated dampcourse between.

It is not sufficiently recognised now that flat roofs can be made perfectly watertight, that the necessity of the pitched roof, from a practical point of view, has disappeared, and in most designs, especially where the roof is not an architectural feature, the flat roof is better in every way. Even in domestic work it has occasionally been used with success.

Solid concrete floors should be used where funds available permit, but ordinary rolled steel joists embedded in same are not an economical form of construction, and the claims of the various kinds of steel reinforcement now on the market should be carefully considered with reference to the particular requirements of the job in question.

Without continuing the subject of cheap building any further it should be noted that no system of construction can be truly economical in erecting a building unsuited to its environment or in maintaining one that has become obsolete. As to the question of when a building has become obsolete the owner is in many cases not fitted to be the sole arbiter on the subject. The most obvious of these cases will be found in slum property generally. In every part of London houses may be bought for less than half what they originally cost, after making due allowance for the diminishing term of the leases. These houses are occupied generally in some way quite different to that for which they were planned, so that there must be more or less makeshift by the tenants, with compensating reduction in rents. Again, we have the large mass of property, not too well built in the first place, that can

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NORWAY CENTENNIAL EXHIBITION, CHRISTIANIA.—MACHINERY HALL.—Mr. Henrik Bull, Architect.

only be kept in use by an output of energy and expenditure disproportionate to the returns. In very many cases it would be far wiser to undertake extensive rebuilding schemes so that convenient accommodation could replace existing obsolete buildings. It is not to be inferred from the above that all old property is unsuited to modern needs; many fine old houses are to be found quite capable of being adapted to present-day requirements.

Without following the United States too closely in the matter of the rapid scrapping of buildings that are considered the least out of date, there can be no doubt that we frequently err in the other direction by preserving buildings whose existence is not justified by present-day social and economic considerations.

NOTES AND COMMENTS.

The report of the Committee—consisting of the Hon. Lord Hunter and Dr. W. R. Scott, Professor of Economics in the University of Glasgow—appointed by the Secretary for Scotland "to inquire into the circumstances connected with the alleged recent increases in the rental of small dwelling-houses in industrial districts in Scotland" has been issued. In the outset it is explained that the Committee decided to inaugurate their inquiry in Glasgow, as being the centre of the most important industrial area in Scotland, and the district from which the most numerous complaints regarding rent increases had been received.

From the evidence given it appears that the principal reasons put forward for an increase of pre-war rents were the advance in the cost of labour and materials, and the enhanced rates demanded for mortgages in consequence of the diminished national credit as evidenced by the Government War Loan rate of 4½ per cent. The increased cost of repairs is estimated at from 20 to 25 per cent., and on the average percentage of rental for repairs this would mean an increase of 5 per cent. on the net rent. The increase due to the now practically universal rate of mortgage interest of 4½ per cent., to which over 90 per cent. of the house property in Glasgow is subject, would also entail an increase of 5 per cent. on the net rental. As regards the actual increase of rent to tenants, it was pointed out that owing to a peculiarity of Glasgow rating, low-priced tenements which formerly just came into a lower scale must with any increase of rent now pay a higher rate, so that to enable an owner to get an increase of eleven shillings on his annual rent the tenant has to pay twenty-four shillings. A new element is added in the cost of insurance against war risks, which is insisted upon by mortgagees and usually involves an addition of 2 per cent. to the net rent. Similar evidence was given with regard to small house property in Dundee and Aberdeen.

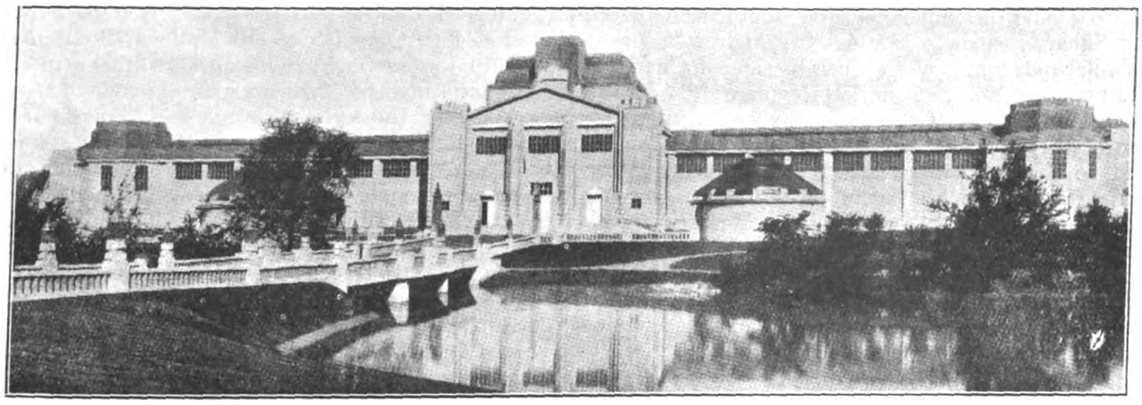
In a communication to the "Liverpool Courier" Councillor John Pemberton, of Warrington, for many years a prominent member of the National Housing and Town Planning Council, thus gives his own experience:

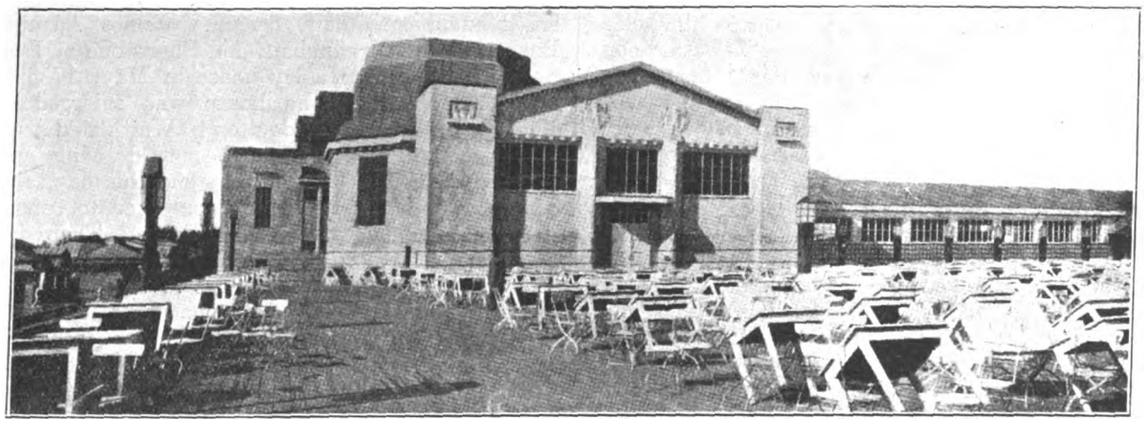
"I have seen this crisis approaching for some years now, and I have myself warned several members of Parliament. Perhaps I may be permitted to give my actual personal experience as a result of the Finance Act, 1909-10. For forty years I have been engaged in the building trade. I have always built under best conditions, and have had no advances or unnecessary legal costs or interest to pay. Therefore I have been able to erect property as economically as it was possible to do. In 1909 I was building houses suitable for the working classes, and I was able to get whatever financial accommodation I required, both in the shape of advances from my bank and as mortgages. But as soon as legislation altered the conditions by taxing both the land on which I built and the land on which I did not build, by doubling the expenses of conveyancing and threatening further taxation and restrictions, I found myself faced with very serious difficulties. Mortgagees began to ask to have their mortgages reduced, the bank ceased to lend to the same extent as before, and buyers fell completely away. Property as an investment dropped flat, and my position as a business man became alarmingly serious in a few months. I concentrated all my efforts in cutting my losses. I drew all my jobs to a close, even going so far as to leave some of the work unfinished. I have two small villas with £120 worth of work done towards their construction, and they are at this moment in the same unfinished condition as they were when I left them four years ago. I kept my leading men in my employ as long as possible in the hope that the Government would change its cruel policy and encourage building to go on again. It was a false hope and cost me a further considerable sum of money."

The Secretary of the Royal Academy states that a report recently published in an evening newspaper of the Council's decision to hold an Exhibition of Arts and Crafts and of French and Belgian Works at the Royal Academy this winter was unauthorised and inaccurate.

The question of holding an exhibition of the kind mentioned has been under discussion for some time, but

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NORWAY CENTENNIAL EXHIBITION, CHRISTIANIA.—MACHINERY HALL.—Mr. Henrik Bull, Architect.

the scheme has been found impracticable owing to the difficulties arising from the present crisis; while the loan of a large number of galleries to the British Red Cross Society for its central workrooms has proved so valuable to the Society that the Council feel that they cannot do better than extend this assistance by the grant of much-needed further space. They have accordingly decided not to hold a Winter Exhibition at the New Year.

We learn that the Incorporated Stage Society has arranged to hold at its offices, 36 Southampton Street, Strand, a series of exhibitions of stage work by modern artists. The first is to consist of models and designs by Mr. Alfred A. Wolmark, whose boldly coloured stained-glass windows in a church at Slough have recently attracted much attention. Last year Mr. Wolmark painted a remarkable portrait of the sculptor Brzeska, who was killed fighting for France, and a few months ago his picture, "Two Fishermen," was presented to the Contemporary Art Society. The second exhibition will be of theatre work by Mr. Albert Rothenstein, who was responsible for the fine setting of several Shakespearean plays produced by Mr. Granville Barker. The Stage Society will do well not to overlook the art of Mr. Gordon Craig, difficult as it may be to adapt to ordinary conditions. So far Mr. Gordon Craig has received little honour in his own country, whereas in Moscow he is hailed as a master. It was generally understood, too, that Max Reinhardt, in his setting of "Œdipus Rex," owed much to Ellen Terry's son.

Headstones in churchyards and cemeteries are now, alas! too seldom the works of art that were their predecessors in the eighteenth century, and though one might justify the signature of works of art we must regard the censure of Chancellor Prescott at Carlisle Consistory Court as justified when he granted a faculty to authorise the removal of the words "J. W. Reed, Sc., Newcastle," from a certain headstone erected in Gilsland churchyard in memory of one Francis Mitchinson, or, in the alternative to remove the headstone from the churchyard.

The fact that the words mentioned were on the headstone was admitted. They were in large black letters on the base of the stone.

The Chancellor, in giving judgment, said it struck him that the words "J. W. Reed, Sc., Newcastle," on the headstone were an audacious and offensive advertisement. This was a great age for advertising, and a very proper place for advertising was the public Press, where great opportunities were given for doing so. Sometimes advertisers used the walls of our cities, and it would be as well if the police sometimes interfered with the advertisements put upon those walls. Some advertisers used huge boards on the borders of our railways in order to add to the amenities of the landscape, but he did trust that our country churchyards would be protected from all such attempts at advertising. The example before him was a striking example which he hoped would not be followed. He had heard complaints of this kind of thing in Carlisle diocese before, and he thought the clergy were indebted to the Vicar of Gilsland for having taken the matter in hand and drawn attention to what was becoming a public nuisance.

After repeated discussions for many years, the question of a site for the Gladstone statue again came under the consideration of the Edinburgh Town Council at their recent meeting. The Edinburgh Gladstone Memorial Committee submitted a statement and request to the Town Council on the subject. The statement was to the effect that the Town Council having, on September 14 last, declined to sanction a site in Saughton Gardens, and the proposed site in East Princes Gardens being subject to conditions and difficulties already explained to the Council, the Memorial Committee had again considered the matter with the view to coming to a decision as to the site. There were four alternatives which had been considered, all of which were dependent

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upon the consent of the Town Council: (1) A site on the roadway and pavement at the south side of St. Andrew Square, opposite No. 4a St. Andrew Square; (2) a similar position on the south side of Charlotte Square, opposite No. 28 Charlotte Square; (3) in the central plot in Melville Crescent, at present occupied by a statue of the second Viscount Melville. In this case it would be necessary to remove that statue to another position, probably in the same street, before the site would be available; and (4) in the centre Meadow Walk.

The Council ultimately unanimously agreed to reject the four sites mentioned in the report, and to adhere to their resolution of March 11, 1902, granting a site in St. Andrew Square between Alexander and Bucephalus and the railings.

Much criticism has been justly expended upon the lack of business methods pursued by the Government authorities in many matters, of which that for the selection of buildings for hospital purposes at Leicester constitutes an enlightening example (says the "Hospital"). All kinds of buildings, apparently because they were large, were selected, including elementary schools and a huge concert-hall, which Dr. Allison, who represented the Government, is reported to have approved for the purpose. As a matter of fact, the large concert-hall could not, under any conditions whatever, however much money might have been voted upon it, be adapted to provide suitable accommodation for hospital patients. In the case of school buildings, although it is possible that certain of them here and there might be adapted for the purpose of bed accommodation in the ward sense, there is almost necessarily a twofold objection to each.

In the first place, the necessary adjuncts requisite to make an effective ward unit could only be provided by a huge expenditure, entailing not only an extravagant initial outlay, but a considerable cost when any school buildings selected should revert to the original purposes for which they were planned. In the second place, the education of the children had to go on; it could not be entirely suspended for an indefinite period, and no one knew how long the war would continue. Besides, the taking of elementary school buildings for the purpose is a course which, in the best of circumstances, every capable educational and municipal authority must resist in the interests of the community which they represent.

A further objection has been demonstrated at Nottingham, where some school buildings have been taken, and where the wards are reasonably suitable, but where also the accommodation for the kitchens and their attendant sub-sections are still so incomplete, despite the money already expended, as to make it impossible for a hospital to be conducted in these buildings without the expenditure of still further sums, and a thorough rearrangement of, and addition to, the plans at present made. The fact is, in the case of school buildings there is seldom or never an adequate site available to provide for the accommodation of the nurses and other members of the staff, for the adequate kitchen provision, relaxation, and many other adjuncts which are essentials if the speedy recovery of the wounded and their welfare are to be the first considerations.

The decoration of the restored chancel of Dunblane Cathedral has now received what may be considered its fitting termination by a handsome gift of stained glass for the six great windows on the south wall. The "pious donor" in this instance is Mr. Justice Younger, who already has been a benefactor to the Cathedral. To him the church is indebted for the stained glass in the great western window; he rebuilt and enlarged the organ, and also presented a fine chime of bells. The present gift is in memory of his mother, Janet M'Ewan Younger, a lady who in her life took a great interest in the Cathedral and all its concerns.

In the course of an address to the Birmingham Architectural Association on "Architecture in Birmingham and the Neighbourhood in the Last Half of the Eighteenth Century," Mr. A. T. Bolton, F.R.I.B.A., suggested that the house of Mathew Boulton at Soho should be preserved as a memorial to the man who was one of the makers of Birmingham.

Whether the interesting house at Soho was built in 1764, simultaneously with the factory, and perhaps from a design by Robert Adam, was a point, said Mr. Bolton, which, up to the present, he had been unable to ascertain. Smiles, in his Life of Boulton and Watt, referred to a letter of 1770 from Boulton to Adam, which he hoped yet to trace, in which Boulton gave an account of his factory and the number of men employed. Unfortunately, that letter could not be traced, and the source from which Smiles appeared to be quoting was not known. Looking at the early date alleged for the house, and its self-evident architectural character, it seemed at least highly probable that it might have been based upon an Adam design. James Adam visited Baskerville in Birmingham and Shenstone at Leasowes, and saw the new Hagley house in May, 1758. There was no doubt the Soho house was enlarged later, as there was a letter from Boulton to Watt dated August 20, 1789: "The foundations of the new drawing- and withdrawing-room are begun to be laid this day, the earth being dug out." That might be taken to refer to the wing on the one side of the house. There had been some controversy in connection with the idea that about the year 1791 photography was invented and first used at Soho. To establish that it had been sought to show that the house as seen now was recast at this period, and a new storey added. It was traditional that Sheraton stayed with Boulton, and made the fine mahogany sideboards fitted in behind the columns. It became a great question, therefore, whether the 1764 house had not been re-cast. Looking at it all round, the apparent unity of the design, which at first sight appeared in favour of the first period of 1764, gave place to doubts arising from unexplained features of the planning and construction. He was inclined to think the balance of evidence was in favour of the design being by Wyatt rather than by Adam, and what was seen now must be regarded as a reconstruction subsequent to 1770, and possibly contemporaneous with the design of the façade of the Birmingham Theatre which was given by Wyatt in 1780.

In concluding his sketch of Boulton's career the lecturer said his life deserved to be honoured and commemorated. No city could afford to live merely in the present, ignoring the salutary influence of its own past. It was to be hoped that the house of Mathew Boulton might yet escape destruction, and, reverently repaired, serve as a museum or library, forming a centre of enlightenment and research, and an entirely suitable memorial of a great personality.

WAR ITEMS.

The first meeting of the General Committee of the Engineering Institutions' Volunteer Engineer Corps, which took place last week, has perhaps attracted more attention in engineering circles than anything previously recorded as to the inception and progress of this Corps. When the Presidents of the three premier Institutions of the world—the British "Civils," "Mechanicals," and "Electricals"—deem an occasion of sufficient moment to grace it with their joint presence, the movement in question is obviously one to command the sympathy of engineers far and wide. Incidentally, it may here be said that the recruiting for this Corps is not confined to engineers, although they form the majority of its members. Good men are acceptable whether members of these institutions or not, and even those untrained as engineers are welcomed if they answer to certain very reasonable requirements.

At the meeting last Friday there were present Mr. Alexander Ross, Professor Unwin, Mr. C. P. Sparks, Sir John Snell, Sir John Gavey, Dr. Tudsbery,

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Mr. Highfield, Colonel Le Rossignol, R.E., Major Henrici, R.E., Captain Sankey, R.E., Mr. L. B. Atkinson, Lieut.-Colonel C. B. Clay, V.D., Commandant, Mr. E. G. Fleming, Adjutant.

The meeting was the occasion of some enthusiasm, and an Executive Committee was formed, consisting of Sir John Snell (retiring President of the Institution of Electrical Engineers) as Chairman, Sir Maurice Fitzmaurice, C.M.G. (a Vice-President of the Institution of Civil Engineers), Colonel Le Rossignol, R.E., Lieut.-Colonel C. B. Clay, Mr. L. B. Atkinson, Hon. Secretary and Treasurer; Mr. Fleming, and a representative of the Institution of Mechanical Engineers, to be nominated by the President.

The report of the Commandant as to the progress of the Corps was most encouraging. To this report he added that an arrangement had been made for sharing headquarters with the 4th Battalion City of London Regiment (Architects' Corps). The premises comprise a spacious drill hall, and above this are the necessary offices for providing mess rooms, common room, orderly room, canteen, &c. Through the kindness of Mr. A. Campbell Swinton, F.R.S., the Corps has received a present from Messrs. Crompton & Company, of a new Admiralty pattern searchlight, of which they are justifiably proud. This is being erected on the premises of the London Electrical Engineers (T.F.), where the necessary instruction will be given. Several men have already qualified in this branch, and parties are engaged each week-end on important work in connection with the defence of London. Under these auspicious circumstances, and with these comfortable and excellent premises for headquarters, the Corps should prove attractive to all suitable men who wish to serve their Country.

The Corps will only accept as new members those who are over military age, or disqualified by reasons of health, or who are engaged on war work, and who are not allowed by the Government on that account to enlist in the Forces, but whose training in this Corps would fit them to take part in the defence of the Country in the event of a raid by the enemy, or any other emergency; and would also fit them to volunteer as trained men for service overseas if such a necessity arose at a later period in the War.

ILLUSTRATIONS.

GEORGIAN DOORWAY, NELSON SQUARE, BOLTON.

On paper this doorway is rather flat and uninteresting, although in actuality it is quite a charming example. This, however, may be enhanced by the scarcity of anything approaching this quality in the town.

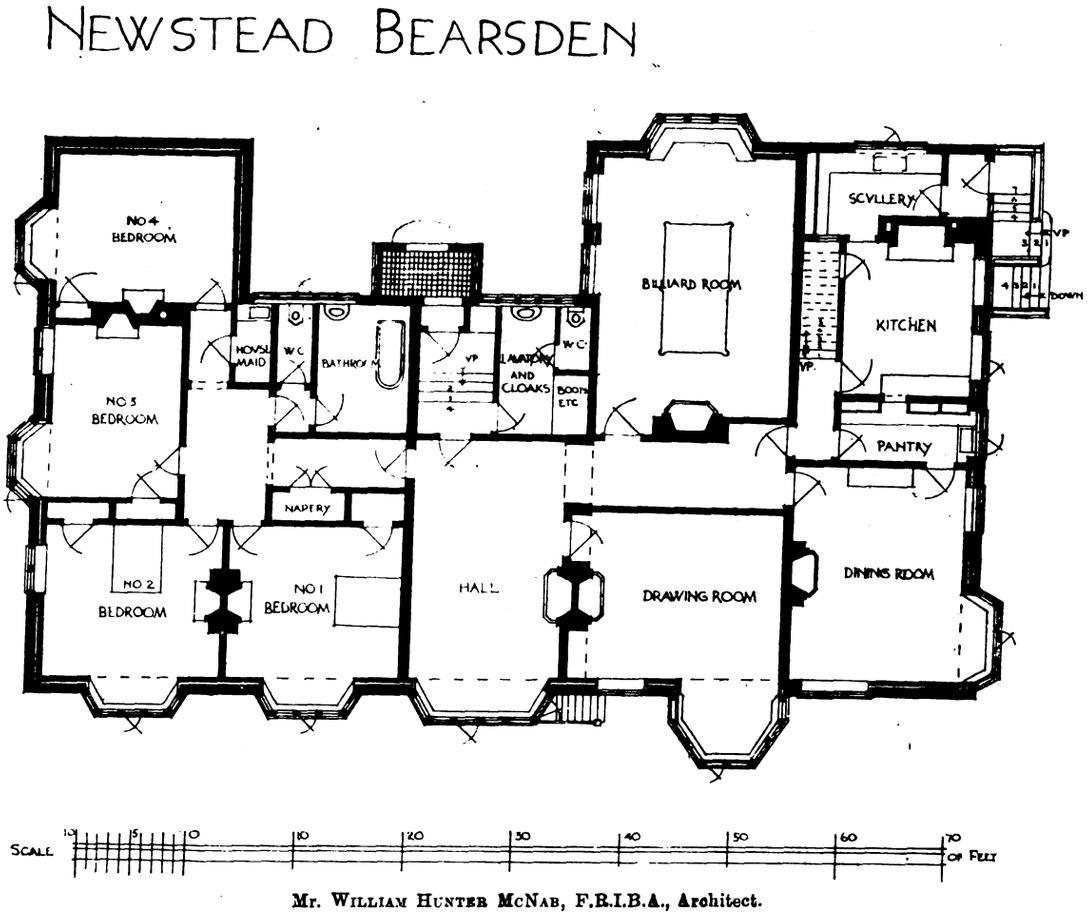
It has had some recognition, for Mr. Mawson cited it as an existing charm of Bolton when he was endeavouring to find the beauties of the place as some grounds for the general improvement of the town.

The doorway probably dates from the close of the eighteenth century, the period now to be known as "Late Georgian," which at the best is perhaps tasteful, but none the less weak.

The drawing is by Mr. Bright Fraser, and was submitted in connection with "The Architect" Sketching and Measuring Club.

"NEWSTEAD," BEARSDEN.

This is a small house of the bungalow type erected on the summit of Bearsden, a popular suburb a few miles to the south-west of Glasgow. It commands, to the south and west, an uninterrupted view of the Clyde



Mr. William Hunter McNab, F.R.I.B.A., Architect.

Valley. The house is designed on simple lines and of inexpensive construction, with a minimum of dressed stonework. The walls are of hollow brick covered in Portland cement, finished rough-cast. For the framing of oriels and other windows solid kauri pine has been used, and the entrance porch is framed in the same wood. Barge boards have been employed for the gables, and the roofs are covered with Lewis's "Rosemary" tiles. Touching upon the internal treatment, perhaps the most striking apartment is the hall with its open timbered roof. The walls are, like those in corridor, panelled

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up to height of doors in kauri pine stained in a simple grey colour. The deep frieze above is of a soft white, and at the end of room, over window, is a lunette formed by the arched roof, also painted a soft white. The fireplace here, as in the other apartments, is entirely of stone. The internal finishings are generally of kauri pine. Above dado the walls of the drawing-room and dining-room are decorated with plain, self-coloured papers, and the friezes and ceilings are done in soft white. Except for the heating arrangements carried out by Messrs. James Boyd & Sons, Paisley, and casements executed by Messrs. George Wragge, Ltd., Manchester, the work was carried out by Glasgow firms. The builders were Messrs. Brown, Fraser & Co.; joinery, Mr. John Cochrane; plumbing, Messrs. James Ingleton & Co.; slating by Messrs. W. & D. Mailer; plaster-work carried out by Mr. H. S. Bathgate; grates and gas-fittings, Messrs. Wm. Kemp & Co.; painting, Messrs. Guthrie & Wells, Ltd. The architect was Mr. William Hunter McNab, F.R.I.B.A.

"ROSSDHU," LUSS, DUMBARTONSHIRE.

"Rossdhu," Luss, the family residence of the Colquhouns, is situated on the western shore of Loch Lomond. A few years ago a fire occurred, burning out the drawing-room wing entirely, leaving only the outer walls. Our two illustrations show detail of fireplace and general view of drawing-room, looking south, as remodelled and restored on entirely altered lines by Mr. William Hunter McNab, F.R.I.B.A. The panelling is of Austrian oak, waxed slightly and rubbed up, and is carried up to full height. Around the room runs a richly ornamented cornice. The elliptic roof is embellished with ornamental plaster in low relief, scumbled or stippled over in Duresco of a mellow tone. The beautifully-designed ceiling is formed into sections of three panels. Each alternate section has the same design, consisting of roses intertwined with vine leaves. The other design comprises a simple motif of acorns and oak leaves. The tympani at the ends of the room contain the family arms modelled in plaster. The plain oaken chimney-piece, with mottled marble surround and kerb, forms a feature of the room. Three contractors were employed. Mr. George P. Bankart did the ornamental plaster ceilings, and the panelling and painting were done by two Glasgow firms, Messrs. Mathew Henderson, Ltd., and Messrs. Guthrie & Wells, Ltd., respectively.

HOUSE BUILDING: PAST AND PRESENT.—III.*

By M. H. Baillie Scott.

If we turn from the old buildings of this country to those of the modern world, we shall find a radical change has taken place. Building, instead of being, as a matter of course, an adornment of the world, has now become generally recognised as a deplorable but necessary disfigurement. When some country district is invaded by modern houses, we all lament the spoiling of its beauty. So it comes to this. Old building beautified the world; modern building spoils and disfigures the world. But my chief concern about building is not so much from the point of view of the observer as of the producer. And I believe that beauty in building is the natural outcome of healthy and happy work, and that, while the production of beauty naturally is a sign of health of the spirit, the production of ugliness is a sure sign of disease.

I am, of course, aware that, besides the commercial buildings of to-day, there are some brave attempts now being made to build in a better way. These attempts are, however, quite isolated and sporadic, and count for little in comparison with the bulk of modern house building. And those who attempt to apply right principles to modern building find their way beset with difficulties, for of building considered as an art the modern builder knows little. His whole outlook, and the whole training of his men, has been towards an idea of mechanical perfection. The best kind of brickwork, from his point of view, is a wall of perfectly regular and evenly coloured bricks; the best kind of roof tiling consists of tiles of exactly similar shape, size and colour, in faultlessly even rows. To ask the modern workman to throw over these ideals is to injure the only pride he has in work, and if he concedes his point it is but indulgently to humour what he considers an amiable weakness. But any real reform can only be gained by a more intelligent teaching of building construction, and a recognition of the possibilities of ordinary craftsmanship. If one refers to any of the ordinary text-books placed before the student, the crafts are displayed with a stupid disregard to anything more than dull material considerations. A certain formula is given for the construction of a floor: joists of a certain regular size are to be placed a certain number of inches apart. Below them the plaster ceiling is fixed, and above them the boards. That is the way, and apparently the only way, to make floors. But if we visit an old house we shall find these joists placed with a fine disregard for exact spacing or equality of size. We shall note how the slight undulation of their outlines expresses the character of timber and suggests the lines of the grain. The plaster is fixed between these joists, which are left visible and are themselves supported by beams, which are again in their form, surface and outline full of suggestion of the character of the material, so that they convey to us a hint of the fact that, though now subdued to the will of man, these beams had once been living trees of the forest. It is also always assumed, in these text-books, that the simplest way of doing a piece of work is the worst, and that really high-class work is distinguished by unnecessary elaboration. The general idea to be gathered from the building text-books is that we have, first, the rather plain and dull business of common building, which, as it develops in elaboration and ornateness, ascends in the scale until at last it becomes sufficiently complicated to be called architecture. It is on such principles as these that our architects and builders are trained; so that to learn anything about the art of buiding it is necessary for most of us to begin by forgetting everything we have been taught, and to pick up, as we can, mostly from old work, the general principles of the right kind of building.

The influence of machinery on the handicraft of building no doubt largely accounts for the mechanical ideals of the modern craftsman, although it would seem it ought to have the opposite result. For the craftsman should say, "Here am I engaged on a mechanical task. It might be easier to lay these bricks by machinery; but since they are to be arranged by a human being, would it not be well for me to put something into the work which no machine can compass?" Machinery, then, has its uses in showing us the futility of mechanical art, and emphasises the importance of the direct, personal touch of the artist. It is well that machinery should be used in the service of man for executing those tasks which are outside the proper scope of handicraft. But in all machinery there seems to lurk a malignant imp, which imposes its will on us, narrowing our whole conception of the universe to a mechanical standard, and making us in the end the slaves of the monster we have created. On this subject of mechanical art, the eloquent words of John Ruskin may be quoted. He says: "It does not become our immortality to take an ease inconsistent with its authority, nor to suffer any instruments with which it can dispense to come between it and the things it rules; and he who would form the creations of his own mind by any other instrument than his own hand would also, if he might, give grinding organs to Heaven's angels to make their

* Abstract of the third of three lectures delivered before the Royal Society of Arts, and printed in extenso, with illustrations, from houses designed by the author, in the Society's "Journal."

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music easier. There is dreaming enough and earthiness enough and sensuality enough in human existence, without our turning the few glowing moments of it into mechanism; and since our life must at the best be but a vapour that appears for a little time and then vanishes away, let it at least appear as a cloud in the height of Heaven, not as the thick darkness that broods over the blast of the furnace and rolling of the wheel."

One of the main differences between modern building and that of the past is its marked incoherence. As such it faithfully reflects the unrest of modern life. In the living ages of art in building, we may compare its life force to the chlorophyl which colours the leaves of the trees. This chlorophyl has now become degraded, as a botanist would say, and individuality runs riot. The broad stream of modern building is of that peculiarly repugnant commercial kind which thinks to use art as a kind of bait. Instead of the confessed brutality of Victorian building, we have the picturesque villa, with its long, sloping roofs and other travesties of the features of the old English cottages. And it would appear that these things are gratefully accepted by an unsuspecting public The house is given a ridiculous name, and filled with artistic furnishings, and no one seems to suspect there is anything wrong with it. Picturesqueness in the old village is right, because it is the natural outcome of requirements, and has not been deliberately aimed at for its own sake. It hardly appears to have been "designed," but to have merely inevitably occurred. And if we consider the quality of the building in the modern garden suburb, we shall find all the subtleties of the traditional craftsmanship of the past have disappeared in the modern work, and the cottages are run up by the help of labour which has lost all power of self-expression. Much, of course, must depend on design; but workmanship is vital. The man who shapes the timbers and lays the bricks supplies, at first hand, his contribution to the final appeal of the building, and can make or mar it. We should find no difficulty in recognising such an obvious contention as this in any art properly credited as such. In the meantime our architectural students are not interested in building at all. You will find them engrossed in the ancient architecture of Greece and Rome, and making ambitious schemes for royal palaces and public memorials. Not long ago there appeared in the architectural papers the students' designs submitted in a competitive exercise of their skill. And what was the subject? Was it a cottage or country house? Perish the thought that they should concern themselves with such trivialities! No, these beginners must begin at the top. They were to design a monument to commemorate the bringing of water to a town. This design was quite seriously undertaken, and resulted in variations on that particular kind of fatuity which consists of innumerable flights of steps leading nowhere in particular and culminating in a central sculptured imbecility which not even all the facilities provided in the way of steps would induce one to approach. I do not wish to reflect in any way on the ability shown by the students in these designs: I would merely wish that it were better directed in solving the practical problems of the day.

The difficulties in the way of the practice of the art of building in these days, due to the mechanical training of the architect, ruling his lines on a board, and the bricklayer, ruling his lines on the wall, are only a part of the artificial obstacles put in the way of the artist in building. He has in most districts to face also an arbitrary, vexatious and irrational set of rules, and to fit his building to the Procrustean bed of the building bye-laws. They interfere either too little or too much with the liberty of the subject. If we are to be dragooned into healthy ways of living, it should be done consistently or not at all, for the application of the building bye-laws in many cases defeats the end in view.

I think, if I were asked what is the most satisfactory feature in modern house building, I should say it was the scaffolding. In constructing it we find there is a recognised tradition, and a rough-and-ready simplicity and honest adaptation of means to ends—all the qualities in short which, in the modern building which it surrounds, are so conspicuously absent. It evidences the fact that the pursuit of beauty in building is so often almost as vain as the pursuit of happiness in life. Both alike are by-products, and arrive as a reward for doing the right thing in a simple straightforward way.

With regard to many of the latest inventions in the practical appointments of the modern house, I share the common English quality of requiring that some one else shall be the first to experiment with them. I can at least say that I am a believer in the use of gas for cookery—if not entirely, at least as a supplement to the kitchen range; and, for the latter, the use of anthracite as a fuel has many great advantages. In these adjuncts of the house, however, I can never understand why it is necessary to make such things as kitchen ranges and stoves and radiators so unnecessarily ugly, and why we should not have in them some of the simplicity and beauty of design in casting which we find in the old Sussex cast-iron work, for instance. I believe the only well-designed kitchen range I have seen, from this point of view, is, alas, made in Germany.

The importance of proportion in the design of houses can hardly be over-estimated. It is the fundamental thing. It is all the more unfortunate, then, that it eludes definition and explanation. It is a mystery and must remain so. In speaking of proportion as applied to the house, I mean by it not only the shapes of its masses and the dimensions of its apartments, but also the relative sizes of all the parts of its structure. Used in this sense, proportion is often described as "scale," and a certain feature in a building is said to be "out of scale" when it is disproportionate. Not only in building, but in all the affairs of life, a proper sense of proportion is of great value. To discern the proper significance of facts in relation to other facts without distortion is the mark of a well-balanced mind. And how disproportionate are the views of so many on the question of house building! One is all for the artistic, for quaintness and picturesqueness, without proper recognition of practical functions. Another is all for sanitation. Then there is the light and air specialist, and the logical outcome of his attitude would make each house a little Crystal Palace. Or again, the labour-saving crank, whose ideal state would involve complete bodily inactivity. In such a welter of conflicting and disproportionate ideals we must try to hold a proper balance, and to look at things broadly and sanely; and the best houses I know are those which bear the stamp of a kind of inspired commonsense, and contrive to weld into one the beauty of the old house and the practical contributions which modern science has made to domestic life. Without suggesting any mechanical rules of proportion, it may be at least safely affirmed that masses of structure which are long and low and broad-based convey the idea of calm and tolerant breadth of mind and wise humility, while buildings which soar high on narrow bases suggest ambition and aspiration. Each has the defects proper to its qualities, and as the broad-minded philosopher is apt to miss the significance of the higher flights of the soul of man, so the aspiring devotee may be narrow in his judgments. But, apart from such generalities, the general principles of proportion are to be felt rather than reasoned about, and a sense of proportion is to be gained by a study of good examples in the past, where the instinct for such matters was so unerringly fostered by tradition.

It must always be remembered that art in the past was not the highly specialised matter that it is to-day, and was concerned with practically all the activities of man. In modern practice, the painter recognises the value of relative proportion in the various parts of his

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picture, and he knows how the qualities of each colour and tone are modified by other colours and tones; but this sense of relative proportion with him stops short of the picture frame, which effectively cuts off the picture from the outside world, in the same way that the artist himself in the modern world is disassociated from the general field of human activity. But when building was the mistress art, and all other arts combined with the same idea of producing beautiful buildings, when the house was not merely a shelter for art treasures but itself the art treasure, then the same sense of relative proportion, now practised in the confines of the picture frame, spread itself over the world, and so the house was in harmony with nature and with other houses, and the furniture and ornaments were duly related to the house. How strange in such a world would have appeared the modern picture gallery, or the modern museum, in which art now takes refuge from life!

In giving practical illustrations of the general principles of proportion in building, it will be well to consider first the design of the cottage. Here the building is necessarily a small one, and all its features must be small too, and the whole conception reduced in scale, and if this is done consistently and completely, in spite of smallness there will be no sense of disproportion. If, however, a window is made too large in scale, or the staircase developed as an artistic feature, or if a desire for a lofty ceiling is allowed to obtrude, the whole modest balance of the building is upset, and the cottage becomes an abortive villa. And in the larger houses a like proportion is necessary, and the smallness of parts so desirable in the cottage often becomes pettiness when applied to larger houses, and in all no single feature stands by itself on its own individual merits, but can only be judged in relation to the whole building.

(To be concluded.)

A NEW EPOCH.*

GENTLEMEN,—A year has passed since I had the privilege and pleasure of addressing you as President of the Northern Architectural Association. I find myself for a second year in that honoured position; and would at the opening of a new winter session take this somewhat tardy opportunity of thanking you most sincerely for the honour you have done me.

If perchance in the years to come some member, perhaps a budding President of this great, and in that future time much greater, Society, should take it into his head, out of an idle curiosity, or maybe for inspiration for his coming address, to glance through the presidential addresses of the past, would he be struck by anything singular about so apparently commonplace an opening as that just uttered? No doubt he would wonder how it happens that, in what he very properly would suppose was a live Institution, the President does not address a meeting from one year's end till the next.

But if he glances at the top of the page and notes the year 1915, the second of those fateful years seared deep, literally, with the branding irons of fire-forged steel, into the history of his country, he will understand; and I would crave your indulgence while I have a word with this, my distant successor.

"Well, son of the future, if you are merely curious, read on; but if you be my unborn President searching for professional ideas from the past, you may pass along, for here you will find little for your purpose. A President who has not only entirely ceased to pursue his work of construction, but is vowed to and frankly eager for destruction, who no longer controls the craftsmen engaged in displaying in concrete form the growing wealth and advancement of a nation; but, on the contrary, is employed with these same workers in studying how best to make use of mighty engines of war, in blasting off the face of the earth the ingenious barbarians who would dare to lay their bloody grasp on that nation's most sacred possessions—such a President can be of little assistance to you who live in happier and more settled times. To him an architectural address at such a time is unthinkable. Like so many of his professional brethren, he is engaged in the common duty of preserving what has been entrusted to him by his fathers from the polluted touch of the despoiler, but, unlike so many who are paying their debt in the forefront of the conflict and those who, alas! have paid their all, his lot so far has been to watch and wait; and so he is permitted after a year to fulfil a small part of his obligations in thus addressing his fellow-members of the N.A.A.

"But stay, my scion of a noble profession; whatever your motive, I would have you read on, for I doubt not that as the recorded thoughts of the most obscure worker of the age of Pericles would be perused with avidity by us to-day, so the views of one living in a mighty age of your ancestors will prove interesting if not curious to you who possess a knowledge unknown to us, a knowledge for whose secrets our age is delving to uncover for your enjoyment.

"Forget not that much of that which you enjoy, of that superiority of knowledge and power, of that enlightened outlook on life, of that toleration and sympathy which seem so lacking in this age, of all that seems to place you so much above this age of selfish and senseless conflict, has been built up on the maimed and dead bodies of those who would rather give up life itself than that those ideals to which you have attained and of which you are so justly proud should be sacrificed to the god of ruthless force.

"No class, in what we believe to be the enlightened nations, has withheld its contribution to this struggle for beauty in human life, least of all the profession to which you belong. This and other Societies throughout the Empire to-day mourn the death in battle of some of their most promising and talented members, whilst thousands of architects and students of our art have taken up arms to preserve and foster this beauty.

"We can admire force and strength in their many manifestations. We will not withhold the admission that the visible expression of rugged and unrestrained power rouses in us a sense of admiration—that even a certain beauty of form may be associated therewith—but we do not confuse this feeling with the sentiments aroused by the beauty that is born of the graces and nobility of the human soul. We can see in the cruel and stealthy movements of the tiger, with its form so wonderfully expressive of latent power, something that arouses in us a sense of perfect fitness for the functions of its being—functions that call for craft and energy to make the spring upon its weaker prey. But though we admire this work of nature, we hesitate not to destroy it in order that the still more beautiful form of man, with its equally perfect fitness for its functions, which include the use of its strength for the protection of the weak, may survive.

"And so, my friend, we architects who are citizens first and custodians with all Britons of the riches bequeathed to us are chiefly concerned at the present, like the tiger slayer, with the destruction of an admittedly remarkable manifestation of power, which would be well worthy of preservation and use if it could be tamed.

"This untameable foe of ours, in his national monuments and wherever there is room for it in his architecture, breathes his spirit of arrogance and dominating force, his brutal soul exhales through his works the foetid odour of the jungle *monarch*. It is great, this animal majesty, but it is a thing to be kept apart, confined behind bars, or, better still, deprived of life, and its harmless carcase preserved for the students of evolution.

"You, no doubt, on your brief vacations, have sped over the North Sea in your air car and visited these wonderful old specimens of the jungle age in Germany, and with a sneaking admiration have gazed upon them and pondered over the perversion of intelligence that created them. But if you are tempted to regret that something of force has disappeared from architecture by the suppression of the would-be superman, remember that the freedom which permits of the untrammelled expression of the best that is in you and which has resulted in the great advance your age can claim over that when George V. was King, is only possible by reason of the breath of sanity of *Britain* and her Allies, which dissipated the poison gas of the Teuton monster.

"While I write the task is still uncompleted, but when you read it will long since have taken its place in the list of accomplished facts that have opened up the wider and fuller life which you enjoy. I would I could project my vision into the life of the future, and so provide a stimulus to my fellow-workers of all creeds and trades—they, however, no matter what the sacrifices, will see that posterity is not betrayed.

* Address by Capt. R. Burns Dick, F.R.I.B.A., President of the Northern Architectural Association, Nov. 17.

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"Adieu, friend! I have confidence that what you have received at the hands of your sometimes blundering ancestors will be well guarded by you, for are you not trained to war as well as architecture, and are you not ever prepared and organised to crush with force the Hydra that will for long ages lie in wait for the time when the watch is relaxed and the time seems ripe to strike for world power?

"Watch ever and, above all, be armed! Adieu!"

Now, gentlemen, to justify such a claim as I have just made, in the eyes of posterity we have strenuous work before us. This is no time to pursue the old way with nose up against the dry bones of archæology, trying to tear the soul out of old corpses that ceased to possess them long since when their purpose was served and their course run; like everything that is born, whether of the travail of a woman or the sweat of a man; no time even to consider the practical problems that so properly engaged our attention in normal times.

We must now use every endeavour in our power to defeat the forces that are deliberately upsetting all those conditions on which we based our course of action in solving those many problems. Until the horrible disease which has seized hold on mankind has been stamped out, our work is useless. We must commence the process of inoculation that will protect against a recrudescence. We must find the serum that will destroy or make innocuous those germs of mad ambition. But this disease, having once laid hold on man, will leave an indelible mark upon him, and though I believe he will emerge stronger than ever, all his future course will be marked by the measures of protection his prudence suggests.

Now, as man's ingenuity and adaptability are boundless, it is impossible to forecast with any certainty the form these protective measures will take, but no time must be lost by us in setting to work to evolve them. In our particular domain the influence of this time will be very far-reaching, and one is impelled to a little speculative thought as to what lies ahead.

Curiously enough, on attempting to pierce the veil of the future, my mind instantly flew back 2,000 years. The impulse was irresistible and the explanation simple. No sooner had I formed the concept war-architect than my memory automatically ejected out of one of its "pigeonholes" the same combination, labelled "Vitruvius, appointed by Cæsar Augustus, architect in charge of the engines of war."

We have all read Vitruvius—that shrewd writer on architecture, and with a certain amount of amusement perused the list of attainments he considered an architect should possess, not the least of which, judging from his tenth and last book, was skill in the design and use of war engines. You recall the, to us, humorous description of one city architect who devised a great weapon for the siege of a rival city, and the more than ingenious architect who reduced his rival's skill to nought and saved his country from defeat. Some of his advice may appear amusing, but old Vitruvius was a serious writer with a great knowledge of his craft, and was as devoid of conscious humour in his writings as a German reply to an American "Note," though distinctly shrewd and worldly-wise, as, for instance, when he treats of the choice of a situation for various buildings. For a Temple to the "Goddess of Health and such other divinities as possess the power of curing diseases" a site with wholesome air and pure water should be selected where the sick will more readily recover and a reliance upon the divinity be thereby increased. In other words, "Trust in the Lord but keep your powder dry."

Well, I can see the time returning when the architect will again play an important part in the device of methods to protect his city from the assault of the foe from without; and we would do well to show the wisdom of Vitruvius as displayed in his recommendations on the choice of a site.

We must first grasp the import of this great upheaval; this is not the final war, it is the first of a new epoch.

No matter how or when this conflict comes to an end, can anyone picture a peace that will be anything but the pause of exhaustion? We are a peace-loving people, and I believe would be content to remain so if it were possible, but though there are people amongst us so afflicted with incurable myopia as would lead them to accept peace now, the slumbering war spirit of our ancestors now being aroused by the aggression of other peoples is likely to take a more or less permanent set, and indeed will of necessity require to do so if we are to be in a position to meet the fresh assaults on our existence as a nation, which will assuredly follow in the not distant future.

One potent factor which seems always to escape the well-meaning world pacifists is that so long as you have mankind divided up into different races, with different languages, different religions and traditions, different ideals, customs, and modes of thought, and different views of each other's importance in the scheme of things, so long will you have strife. This is no new condition, but it is one that must be ever reckoned with; it is the one from which this and all wars have sprung and must be treated as permanent, so far as the shaping of our future action is concerned.

This has been of necessity accepted by all progressive peoples and acted upon accordingly, with results varying as their relative skill and foresight.

In our case nature and a supreme Navy, which we have gradually come to assume as all that is needed to comply with this elemental necessity, has lulled us into individual detachment from world strife. So much so that even in the throes of a death strugggle for existence, we have one of the most amazing exhibitions of the workings of the human intelligence that history has to record. These means of self-preservation having failed as complete measures, the extraordinary question is under consideration as to who amongst us shall take on the burden of facing the enemy, who shall leave his private and business affairs to take up his long-neglected shield and sword in his own and his country's defence; shall every citizen as a matter of course be called upon to do what he is considered best fitted for in the crisis; or shall it be a matter of chance, left to the individual? Amazing indeed!

The means hitherto considered sufficient for our self-preservation, if they have not already failed, will do so. Our magnificent Navy, as at present constituted, and the enveloping ocean will prove inadequate in themselves to our maintenance of power by reason of the ingenuity of man in discovering new methods of exerting his offensive force, and of overcoming all barriers to attack on his enemy's territory.

No matter what our scientific experts may have said about the limited possibilities of airships and aircraft generally, I think we are beginning to see that they are to be treated seriously. The whole science of aerial navigation is in its infancy, and anything is possible. Certain it is that as a barrier to serious offensive action on these isles, our sea power is within sight of failure—I don't say in this war, but we have already received notice and cannot afford to ignore it.

If a commanded sea barrier, such as we have, fails, no country, however strong her land frontiers may be, is now immune from the attentions of the despoiler and violater from without.

The power developed by the skill and genius of the scientist and inventor in all directions and now so evident in warfare, has brought about that great revolutionary change that puts a period to one epoch and opens up another. Do we realise what this means; that henceforth there is no distinction between civilian and soldier? These glaring Press headlines—"Barbarous Attack on Undefended Port," "Zeppelin Outrage on Tyneside, Murdered Citizens"—will gradually disappear when we awaken to their absurdity. As Monsieur Léché points out in his "Les Guerres d'Infer," it is no longer paid professional armies that go out to do battle, whilst the citizen carries on his usual business, treating the campaign as a matter of interest in his moment of leisure. Henceforth, it is nation against nation in the literal and fullest sense. Whoever makes munitions of war—man, women, or child—whoever clothes and feeds the fighters, the inventor, scientist, and financier, the brains directing operations, the payer of war taxes, the hewer of coal, everybody practically, all are belligerents and can no more expect to be immune from attack than the man in the trenches or on a destroyer.

Germany has shown the futility of treaties and international military laws. Make them by all means, and keep them if you can, but be prepared to meet those who don't on at least equal terms.

The truth of the saying, "If you want peace, prepare for war," is being realised more and more as the days go on. The price of the most costly preparation to demonstrate our invincibility would have been as nothing to the expense we are now being put to to preserve our existence; but

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above all think of the outpouring of blood that would have been averted! See to it that the lesson is learned.

To meet the conditions of this new epoch and as a matter of self-preservation, I unhesitatingly assert that the only way is to organise and encourage a universal military habit as part of our daily life. I can see the expression of horror on the faces of those good people who live in terror of "Militarism." I see nothing whatever to fear from the general training of the citizen to arms. It is the one sure way to kill "Militarism"; no longer would it be possible, even if it had ever shown itself in Britain, for an exclusive professional military class to dominate the nation. The nation itself would be the army, and would not lightly forsake its peaceful pursuits at the behest of the professional fighter. I see nothing but good in such a change. If it only bred in the individual a sense of the duty he owes to his country, a sense so many clearly lack, it would be well worth the loss of our so-called freedom. Militarism! A bogey!

Are the French more bellicose than we? Does the average Englishman, trained to the scientific use of his fists, go blustering round to demonstrate his prowess, or is not his bearing that of a quiet confidence in his ability to defend himself or chastise any aggressor against the weak? What does England not owe to-day to the Volunteer and Territorial? I am very proud of my T., and in all the years I have been associated with these civilians trained in military practices I have seen no shadow of the spirit of Militarism; but I have seen a marked improvement in the bearing of these men who have in times of peace voluntarily submitted to military discipline which, though limited, was always real. I have learned as I could never otherwise have done, to appreciate the sterling qualities of the Northumberland miner. I mention the miner because my experience has been more with him than other classes. But artisan, labourer, miner, commercial and professional men, no matter what their class or métier, affect a rapprochement and mutual understanding by this military association which no other means so effectually afford. "You want peace, take it then," said Napoleon.

Interwoven through the fabric of national life must be an ordered arrangement for defence, which will be the motif of its pattern. But this new order of things must no longer be left to a few Government departments to deal with. It is everybody's business, and upon that fact being thoroughly grasped depends our existence as a first-class Power.

If we architects were suddenly called upon, as we very soon will be, to so shape the plans of our new public buildings and the laying-out of new town areas, with special reference to the demands created by the new conditions that are looming up before us, we would be somewhat nonplussed. These new conditions have not yet definitely taken shape in the minds even of those who are most intimately mixed up with the swiftly crowding events that are in process of crystallising them. There are no Government departments to which to apply or from which have issued any regulations. These departments will materialise in due course, but on old methods they will prove top cumbersome, extravagant, and inefficient. With a nation composed of individuals brought up to look upon personal liberty as the greatest heritage bequeathed them, free to follow any selfish inclination or ambition they choose, so long as they don't stand in the way of their neighbour doing the same—a people untrained to co-ordination of thought, without common ideals and without understanding as to the national duty that a modern world-state of necessity imposes on its subjects—a people who are only spasmodically galvanised into a noisy display of patriotism by Press and paid politicians, when events threaten a wound to their pride or a loss to their pocket—with such a people no new method is possible.

It is no use blaming the bad or indifferent work of Government departments. These you form, and having appointed officials you expect them to do all your thinking for you, so far as it concerns national business. Why are we criticising the conduct of the war by the men we have loaded with the responsibility for its successful prosecution? We are responsible. If one of your clients doesn't know his needs nor his means, and won't take the trouble to find out, he cannot blame you if the alteration and extension to his house are costing more than he can afford and are not to his liking.

Conscription, national service, State organisation of men and material—call it what you will—we are told is contrary to the genius of our people. Then the sooner we take thought to ourselves and alter our genius the better, for I for one do not believe that our genius is incapable of the addition of a cubit to its stature by an effort of will.

If we continue for a time to succeed without this co-ordination of our activities in the direction that the obviously new order of world politics imposes, we will not have to congratulate ourselves on our perspicacity, but rather on the surprising fact that no other nation has seized upon the obvious means of extending its power. Be not deceived, however, you cannot stamp out in a generation or two the ambitions of a people, and the nation that has been the means of making this national unity of thought and action a necessary weapon of defence on the part of other peoples will not lightly drop it as a weapon of offence because it may have failed on its first use. It is only a matter of time, and the weapon will have been given a keener and more deadly edge. Again let me say it: not kings, not princes, not armies, but nations are at war as they never were before. You and I and everybody are called upon to fight our present enemy, and will never again be able to entrust the work to a small section of the community called the Army and Navy, magnificent as ours have shown themselves to be.

A revolution in educational methods will have to follow: the rising generation must be gradually brought to assimilate the idea of individual responsibility in national action, to develop a sense of pride of country and a willingness to self-sacrifice in defence of her honour.

We have already reached a stage when we consider it necessary in the interests of the community that everybody should be held responsible for the observation of recognised hygienic laws against disease. We are taught the value of fresh air and exercise, treatment of water and milk, burning of organic refuse, destruction of flies and other disseminators of contagious matter—in short, how to combat the destroyer of health and life. And yet we are content to be ignorant of the first essentials in the defence not only of life, but of what is more dear than life—honour, home, country.

Official departments, without the co-operation of the community, would ill combat epidemics of disease. No better will they succeed single-handed against our more deadly foes.

(To be concluded.)

UTILISATION OF NATIONAL RESOURCES.*

Let us consider whether we are, as a nation, making the most of our national resources from an economic point of view, especially as regards some matters that particularly interest the engineer.

Iron and Steel.

Take, for instance, the industries of iron and steel and that of their constituents.

In 1894 the United Kingdom stood highest in the production of iron ore. The following tables, which have been compiled from Parliamentary returns, give the contrast in the production of iron ore by the principal countries between the years 1894 and 1912:—

	1894 Tons	1912 Tons
United Kingdom produced	12,367,000	13,790,000
Germany	12,193,000	32,190,000
France	3,711,000	18,744,000
Belgium	306,000	165,000
United States	11,880,000	55,150,000

In 1896 the United Kingdom led the world in the production of pig iron, and the following table gives the production by the principal countries between the years 1896 and 1912:—

	1896 Tons	1912 Tons
United Kingdom produced	8,660,000	8,751,000
Germany	6,270,000	17,582,000
France	2,301,000	4,870,000
Belgium	944,000	2,264,000
United States	8,623,000	29,727,000

It is satisfactory to observe that as regards iron ore and pig iron we have not lost ground, notwithstanding that our advance in comparison with other nations is very small.

Although the Bessemer process was discovered in 1856, its use for the production of steel did not assume commercial importance until the late sixties, and it was not until 1868 that "Siemens" open-hearth steel was first manu-

* **Extract from the Presidential Address of Mr. Alexander Ross, M.I.C.E., before the Institution of Civil Engineers.**

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factured, when iron ore was made use of to oxidise the carbon and silicon in pig iron. Shortly afterwards the use of iron and steep scrap for this purpose, introduced by Pierre Martin, produced the Siemens-Martin process, and both methods became effective in the early eighties.

At first both the Bessemer and the open-hearth processes were "acid," requiring the use of non-phosphoric ore in the manufacture of pig iron, but in 1877 Messrs. Thomas & Gilchrist took out their first patent for the basic process; and the great development of steel-making on the Continent dates from the adoption of this invention, which has in particular given value to the large deposits of easily-worked Minette ores of Luxemburg and French and German Lorraine.

The development of the basic process, particularly the open-hearth basic, has been much slower in this country for various reasons; but in view of the large deposits of phosphoric ore in the Cleveland district, there seems to be no reason why greater progress should not be made.

A more striking view of the position is obtained by examining the average annual production of steel per head of population in hundredweights.

	1889–93	1894–98	1899–1903	1904–08	1911	1912
United Kingdom .	1·8	2·0	2·4	2·7	2·9	3·0
Dominion of Canada .	—	0·1	0·3	1·5	2·2	2·3
Russian Empire . .	0·1	0·2	0·3	0·3	0·5	0·5
Sweden . . .	0·7	0·9	1·1	1·4	1·7	1·8
Germany . . .	—	—	—	3·4	4·5	5·1
Belgium . . .	0·8	1·7	2·2	3·6	5·7	6·5
France	0·4	0·6	0·8	1·2	1·9	2·2
Austria-Hungary .	0·2	0·4	0·4	0·7	0·9	1·1
United States . .	1·3	1·8	3·3	4·4	5·1	6·6

Summarising our positions, we have not made the same rapid advance shown by our rivals, and it becomes necessary that by an extreme effort, and by adopting the most up-to-date methods, we should make every endeavour to hold our own, and especially to avoid the necessity of importing steel, which we did in 1913 to the value of £15,000,000. This is distinctly disappointing and I hope it may be taken into consideration by all concerned.

It is true our steel manufacturers are liable to severe foreign competition, and at times are subjected to what is known as "dumping," and clearly they ought to have some security against this unfair method of attack.

It is eminently satisfactory to know that British iron and steel occupies the highest position as regards quality, and that we are keeping abreast with respect to the higher-class steels. Nevertheless, it is most desirable we should increase our output, and to do this it is a first essential that the raw materials should be assembled cheaply. What we are short of in this country is abundant in other parts of the Empire, and every effort should be exerted to cheapen its transport.

The prosperity of the iron and steel industry of a country may be taken as a measure of the prosperity of the nation. This being so, it follows that we should exert ourselves to the utmost to maintain and develop in this direction, and all interested should combine to secure this result.

Timber.

Timber, another material largely entering into construction, and of special interest to the engineer, is in a most unsatisfactory position so far as home cultivation and supply is concerned. Undoubtedly, as regards forestry, we are in this country years behind any other European nation.

Forestry and the cultivation of timber is different from almost any other trade or business, inasmuch as that it is barely possible for the person who plants the sapling to cut the same down as a tree at full maturity. Generally speaking, what one generation plants probably the third generation reaps. Hence to an individual there is just that lack of inducement which fosters a tendency to neglect forestry, and which produces a disinclination to find capital for the benefit of some other person, possibly an unknown person.

Timber cultivation should proceed continuously without any lapsed periods, and one generation, after getting reasonable use of what has been handed down to it, should leave an equivalent value to the next generation, and so on.

To carry on this rotation, it follows that for every tree cut down, two, if not three, young plants should be substituted to ensure the survival of the fittest. No such systematic attention has been given to the forests of this country, with the unfortunate result that we are almost wholly dependent on other countries for our timber requirements.

As long as our ships of war were built of timber, our Government, and indeed the public, took a sustained interest in the forests, and especially in the cultivation of timber used in shipbuilding; but gradually, however, as our men-of-war, mercantile marine, and sea craft generally came to be constructed of steel instead of timber, public interest in forestry died away, and it was not until about 1880 that the idea of applying modern methods to the management of the forests were entertained, and special training was established at Coopers Hill and other colleges in connection with the Indian Service.

In 1885-87 a Select Committee investigated the subject of forestry, but its report concerned itself chiefly with the promotion of forestry education and the establishment of a Forestry Board. These suggested powers were conferred on the Board of Agriculture and Fisheries by the Act of 1889. Subsequently Departmental Committees and a Royal Commission investigated the subject and invariably recommended the purchase of demonstration areas and the extension of forestry education.

These proposals, admirable in themselves, were largely of an academic and experimental nature, and until the Development Fund Act of 1909 came into operation, money was scarce and there was no security of any being forthcoming. Still, in 1903 schools for working foresters were established which are considered satisfactory.

The Board of Agriculture and Fisheries and the Office of Woods and Forests and Land Revenues issued a joint report for the year 1912-13 on the forestry under their jurisdiction. They deal with each forest in detail, and in no case do they find one to be in a flourishing condition, and they cannot help coming to the conclusion that forestry in this country is in a backward state.

With the support of a grant from the Development Fund, large demonstration areas have been secured and lectures have been established at various colleges throughout the country, and much actual work of an experimental character has been effected.

In clearing and replanting difficulties had been met with in disposing of branch wood and small and crooked timber, and to meet these an experimental trial plant has been established for the distillation of wood and for the production of wood-tar, acetate of lime, charcoal, and wood-spirit.

These various measures are excellent so far as they go, and will in time produce much good. Still, as planting only commenced three to four years ago, and that, too, over a limited area, and as it takes many years for trees to come to maturity, depending on the species, it follows that it will be a long time before full advantage can be attained.

At the end of 1913 the areas of forest lands in the United Kingdom were:—

	Total Acres	Crown Acres	Total Acres other than Crown (privately owned)
Forests in England and Wales	1,884,100	64,700	1,819,400
,, Scotland . .	868,000	1,000	867,000
,, Ireland . .	306,660	10,000	296,660
	3,058,760	75,700	2,983,060

Private forests present a grave problem. Although many proprietors have done good and advanced work, in many cases the owners have been living more or less on the past, and planting has not been systematically carried out. It is not at all likely that owners of large forests will—nor indeed can unaided—develop these to their full extent, and in many cases transit difficulties constitute a serious barrier.

Acknowledgment is due to the Royal English and Scottish Arboricultural Societies and the Irish Forestry Society for the great help they have consistently given to forestry.

In this country we can grow almost all the trees of commercial value excepting mahogany and other finer hardwoods and certain Oriental trees, and we are particularly well adapted as regards soils and climate for growing and cultivating the various conifers, larch, fir, spruce, Corsican firs, and others of those most used in structural work and for commercial purposes.

In 1912 we imported:—

	£
Unmanufactured timber to the value of	28,357,000
Manufactured ,, ,, ,, ...	3,393,000
Wood pulp to the value of	4,418,000
Total	36,168,000
We exported in one form or another	3,582,000

This apparently represents a good deal more timber than this country could produce under the most favourable circumstances, even if new areas were planted. Notwith-

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standing, we can almost immediately—or, at any rate, in the course of time—reduce our imports very considerably; but particularly is it desirable that we do not import manufactured timber, chiefly consisting of doors and windows and their frames.

Having unfortunately allowed ourselves to get so far behind with our home supply of timber, what is to be done? Clearly, we cannot wait until, by the means of the scientific investigations set up, we ascertain what trees are the most suitable for the various soils and the different parts of the kingdom and what are the best systems of planting.

We have abundance of evidence that we can grow certain trees, and we have with us a race of good shrewd foresters and woodmen having a practical knowledge of planting, clearing out, ventilating and draining forests, and it is to be hoped that, without further loss of time, means may be taken to deal with our forests generally and continuously.

But what are we to do in the meantime for our timber supply? It is well known that there are numberless trees in our forests, alongside our highways and lanes, in the field hedges, and groups in the fields themselves—very many in our parks—fully matured and ready to be cut down, a large number overmatured and in which deterioration has commenced, and again large numbers in an advanced state of decay.

No doubt certain economic reasons could be given why this waste has been permitted, such as the scattered positions of these trees, transit difficulties, and in many cases the reluctance of owners to part with their trees, a sentiment which would fail in strength if younger growths were standing alongside. Still, the situation should be faced, and no doubt means could be devised to meet these difficulties, and so secure timber for our home consumption.

The importation of timber has been steadily on the increase, and in fifty years has advanced from £9,058,000 in value to £23,675,000, and during recent years prices have been on the ascending scale. Timber is constantly being put to an increased number of uses; particularly is to be noted the enormous quantity cut down year by year and converted into wood pulp.

Of the timber imported, roughly one-fourth comes from the British possessions, chiefly from Canada, and the remaining three-fourths from the United States, Russia, Sweden, Norway, Austria, France, and Germany, mostly from primeval forests.

Most of the British possessions grow excellent timber of every species and variety. Canada, for instance, has an area of about 3,650,000 square miles. The area of the forests is roughly about 1,250,000 square miles.

Of the total area called forests, only about 26,000 square miles, or about one-fifth, is said to grow timber of real commercial value, the other four-fifths being of small growth. Still, the area of valuable timber is enormous, and under progressive treatment must have a great future.

It is all-important that until we can depend more on ourselves for our requirements, we should save the use of timber as much as possible by the substitution of other materials, and by the scientific application of the most approved means of treating and preserving timber, so as to render it as lasting as possible.

The railway companies in the aggregate consume enormous quantities of timber for various purposes, as an instance, their annual consumption of sleepers, 9 feet long by 10 inches wide by 5 inches deep, must amount to millions. An immense saving of timber would be effected if a suitable substitute could be found. Many attempts have in the past been made in this direction with some measure of success, yet never completely satisfactory results. Still, success is quite within the bounds of probability, and is well worth an effort. Anything that will either decrease the imports or increase the exports must obviously be of national importance.

A NEW parish hall and institute have been formally opened at Willington by the Bishop of Jarrow. The new building was designed by Mr. W. A. Kellett, architect, Bishop Auckland, of the firm of Messrs. Kellett & Clayton. It is of brick and stone, and occupies an open site at the end of Kensington Avenue. The main hall will seat 500 persons, while the institute block comprises a billiard-room, reading-room, library, and kitchen. The bathroom and other accommodation are on a suitable scale. A commodious caretaker's house also forms part of the scheme. The principal building contractors were Messrs. Hope & Son, of Coundon.

SOME CONCLUSIONS ON HOUSING OUR WORKERS.*

By W. E. RILEY, R.B.A., F.R.I.B.A., M.I.C.E.

HITHERTO it has been contended that, except in the case of a minority before mentioned, the most rational method of housing where travelling facilities are available was to provide cottage accommodation. This should be far enough from the business centre to ensure that by reason of cheapness of site it would be possible without incurring financial loss to afford a reasonable amount of open space and sufficiency of accommodation, with the privacy which is probably the greatest asset in a home. With adequate transit to convey the worker cheaply and quickly to his employment, there can be little doubt of the superiority of the cottage over the block dwelling. Fresh air, change of scene, and easy access to the country must brighten the lives of the occupants of the cottages, and the removal of many sordid influences inseparable from town life cannot fail to produce a good effect not only on the health, but on the efficiency of the worker. The conditions under which accommodation has been recently required by the State are so exceptional as scarcely to constitute a fair test. The urgency of the need allows little time, and the state of the market for labour and materials almost eliminates consideration of cost. It is inevitable that cottages built in such circumstances should cost more, but one result of these conditions is that any doubt as to the relation of rent to capital cost might be disregarded. Such schemes in themselves are unconcerned with the problem which has troubled housing reformers for many years—viz., whether it is financially possible to house the worker on a rent which he can afford to pay, having regard to his income, and whether the State should subsidise those cases where, owing to lowness of wages, adequate accommodation cannot be provided on a sound financial basis. Where the Government provide the site and buildings and the worker also earns a wage considerably in excess of what he receives in peace time, these questions do not arise; but the reflection cannot be ignored as to what is to happen to such estates after the war, in the event of large numbers of men being no longer required for such work. The State may not need the estates, and it is to be doubted whether any purchaser at anything like the original price could make a sound investment of them.

It is not on account of financial considerations alone that every endeavour should be made to draw the industrial population from crowded centres to the spacious and healthier suburbs. A recent Departmental Committee has said that public opinion now recognises and demands that every working-class family should be provided with a self-contained dwelling of sufficient size to prevent overcrowding, and which admits of the separation of the sexes. A self-contained dwelling is defined as one which provides living accommodation with scullery and water-closet accommodation for the sole use of each family. Some of the difficulties which beset the provision of such accommodation in central districts have been indicated. In addition, there is the growing importance which is given to abundance of light and air, and there are signs that demands will be made for more hygienic construction in our building. The effect of the sun's rays in destroying microbes is admitted, and it is claimed that buildings should be so designed that the direct rays of the sun should penetrate through every part of all living rooms. I am strongly of opinion that an effort should be made in every case in which block dwellings are erected to dispose the blocks on the site in such a way that the maximum of sunlight would reach the habitable rooms. This might operate disadvantageously on the accommodation, but considering the limited sunlight (particularly in winter) in this country, it is essential that as much as possible should find its way into the living rooms.

At the Housing and City Development Congress held in Ghent in 1913, a French housing expert showed plans of dwellings which are described as model in various parts of England, and produced statistics to show that they are planned against many elementary principles in hygiene. The criticisms were levelled at the practice of enclosing

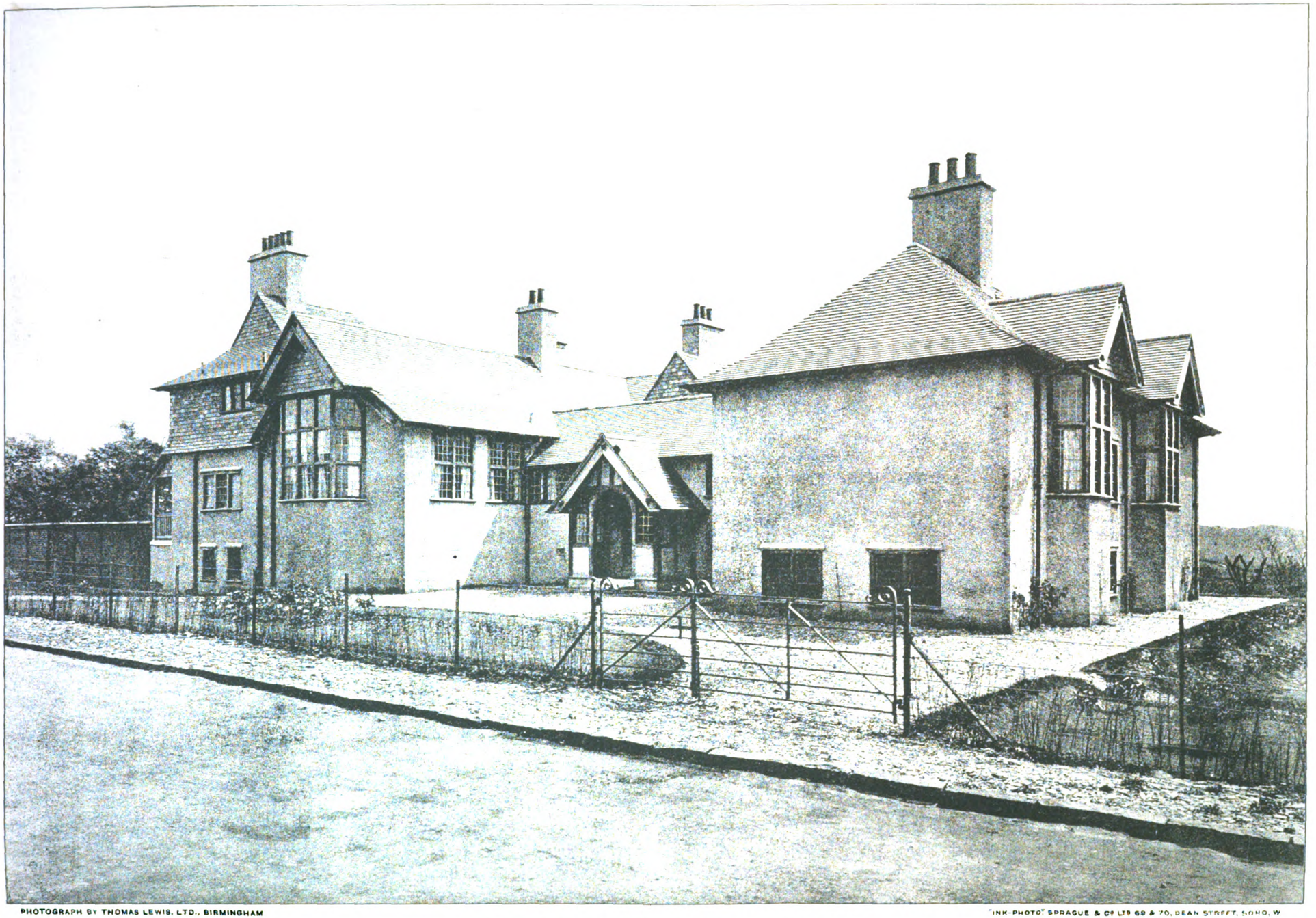
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* Abstract of Chadwick lecture at the Royal Sanitary Institute, Nov. 17.

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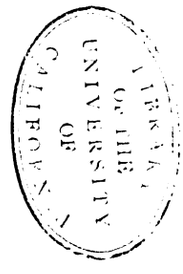
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NEWSTEAD BEARSDEN: VIEW FROM N.W.

Mr WM HUNTER McNAB, F.R.I.B.A., Architect

(Royal Scottish Academy, 1915.)

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ROSSDHU LUSS, DUMBARTONSHIRE: THE DRAWING ROOM, DETAIL OF FIREPLACE.

Mr. WM. HUNTER McNAB, F.R.I.B.A., Architect

(Royal Scottish Academy, 1915.)

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"THE ARCHITECT" STUDY

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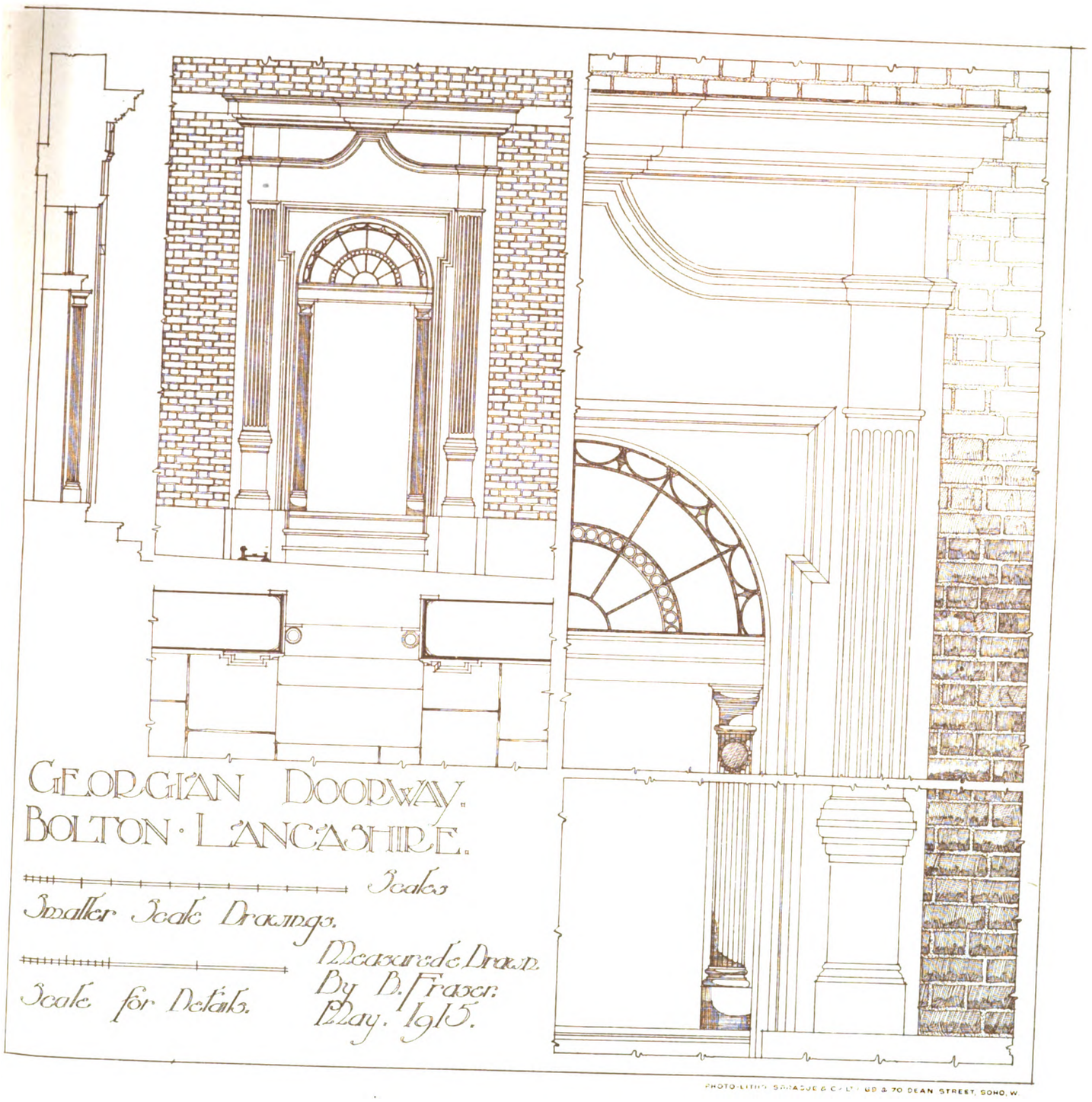
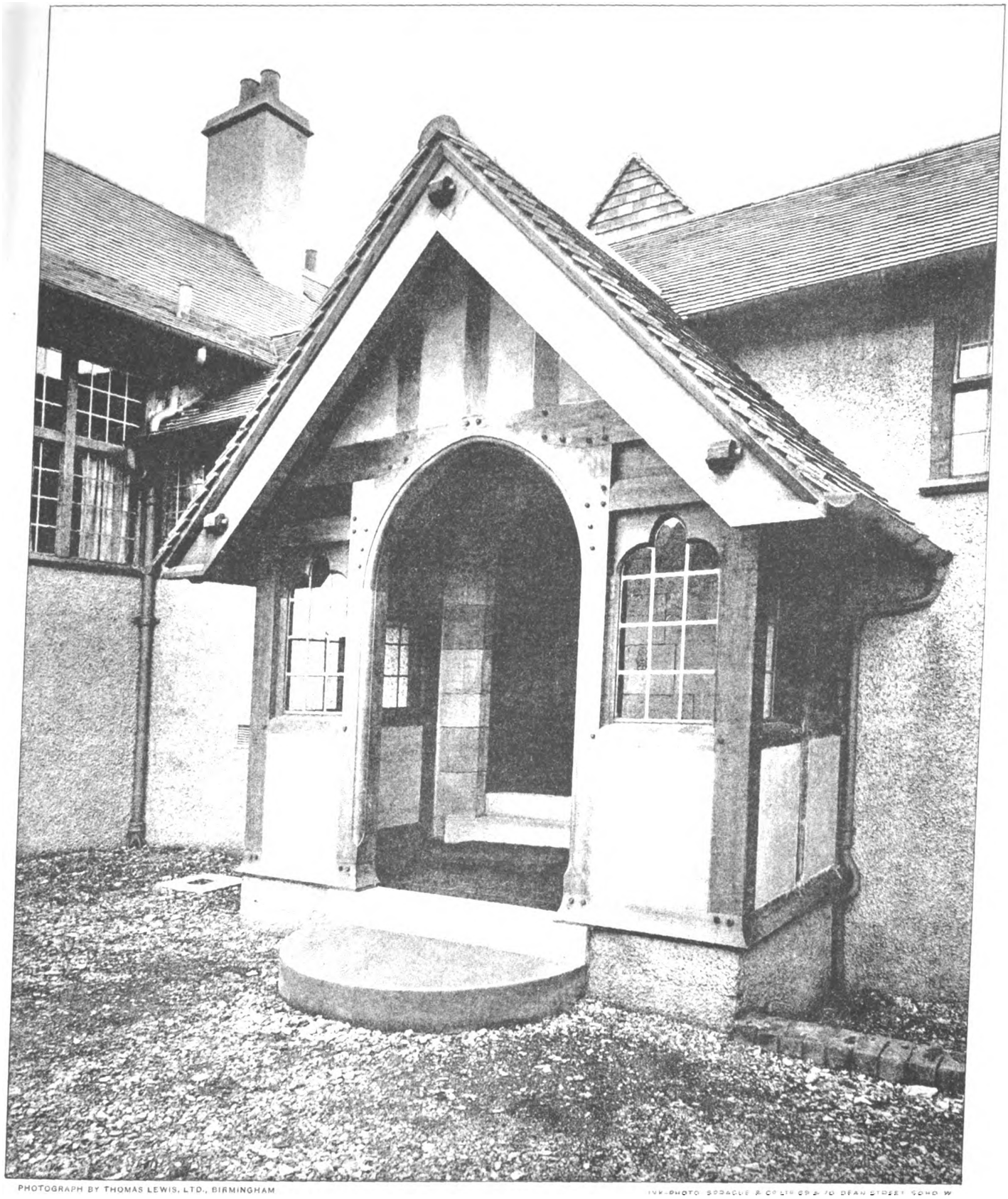


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NEWSTEAD BEARSDEN DETAIL OF ENTRANCE PORCH.

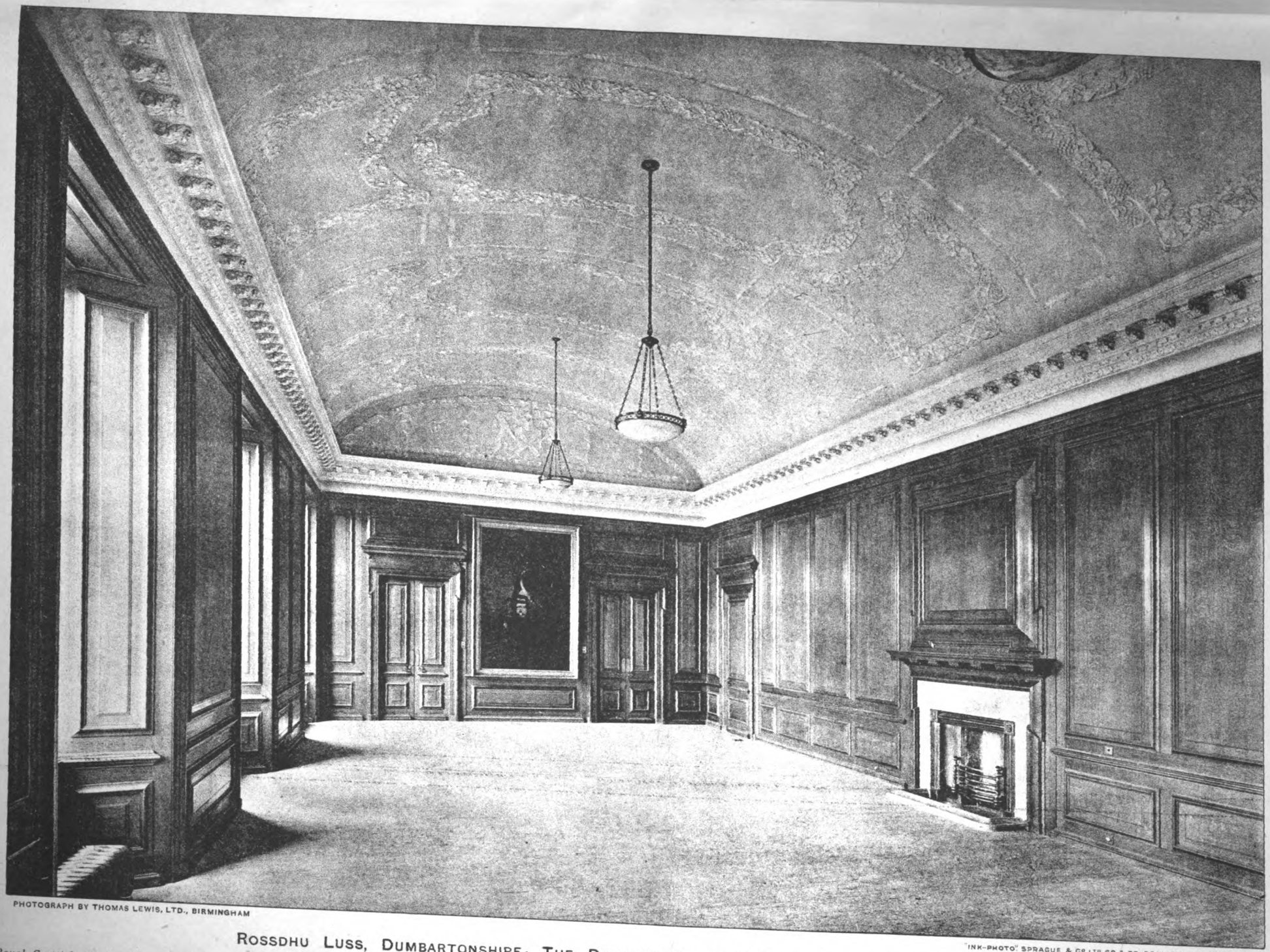
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ROSSDHU LUSS, DUMBARTONSHIRE: THE DRAWING ROOM, GENERAL VIEW (LOOKING SOUTH.)

(Royal Scottish Academy, 1915.)

Mr. WM. HUNTER McNAB, F.R.I.B.A., Architect.

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common staircases and the exclusion of the very limited sunlight which this latitude affords in the darker portions of the year, but principally in connection with the want of cross ventilation in the tenements. There was much reason in these criticisms, as there are numerous dwellings in London where it is impossible to get through ventilation between front and back rooms, the cross wall in many cases obstructing the passage of air. This matter is referred to in the London County Council's housing handbook in 1913, where it is stated that, although the Housing and Town Planning Acts declares the erection of back-to-back houses to be unlawful, it does not prohibit the erection or use of a tenement house in which the tenements are placed back to back, if the medical officer for the district certifies that the tenements are so constructed and arranged as to secure effective ventilation of all habitable rooms in every tenement. The Housing Acts give no definition of back-to-back houses, but a reasonable definition would appear to be a house or letting having one lighted side only, with ventilation open to the external air. It states that the Council in 1911 had before it plans of a group of block dwellings proposed to be erected by the trustees of a philanthropic fund. On the basis of the above definition a large number of the tenements were back to back, and in any case the Council felt that the general provision of through ventilation to the intermediate tenements was unsatisfactory. The medical officer for the district issued the certificate required by the Act, and the Council could not therefore take any effective action. In addition to through ventilation, all staircases giving access to the rooms should have openings which cannot be closed on the two sides back to front of the block, to afford efficient ventilation. Where balconies are employed they should in no case overshadow habitable rooms. I am bound to admit that in London there is always opposition to leaving the staircases open, but I am convinced that it is a correct and hygienic method of dealing with the ventilation of these buildings.

Financial and hygienic difficulties such as have been indicated do not arise in the construction of cottage homes, so many of which are being developed on the outskirts of our large towns. It may be interesting to compare the cost of a cottage at the County Council's White Hart Lane Estate, Tottenham, containing living-room, bedroom, scullery, and offices, with the same accommodation in block dwellings at the Bourne Estate, Holborn. At White Hart Lane the cost of land was £11 16*s.*, roads and sewers £24 4*s.*, and buildings £180, or a total of £216. At the Bourne Estate, the cost of land was £387 and the buildings £286 10*s.*, or a total of £673 10*s.* It will thus be seen that a family could be housed at White Hart Lane for considerably less than the cost of land alone at the Bourne Estate. The municipal development of cottage estates on the outskirts of London has been carried out under Part III. of the Housing Act, which has been regarded as voluntary. The land charge is taken into account at purchase price, and the scheme must show financial equilibrium after bearing all capital charges.

Time will not permit a lengthy description, but it may be of interest to refer briefly to the development of these estates. The cottages are two-storey buildings arranged in short terraces with spaces at intervals, and they are almost invariably set back 5 to 15 ft. from the forecourt fence. The schemes for development have been largely influenced by the following considerations:—

(1) Economy of land area and road construction in proportion to building.

(2) The avoidance, as far as practicable, of deep external back projections in close juxtaposition, which tend to cause insanitary pockets and prevent the freer circulation of air currents along the backs of terraces of houses. The wholesale erection of these insanitary projections in close proximity to each other in many suburban estates is a reproach to the law which permits it.

The first large scheme undertaken in London was the development of the Totterdown Fields Estate, Tooting, about six miles from Charing Cross and about three-quarters of a mile within the county boundary, on the main tramway route between Tooting and the central area. The estate, which is about 38¾ acres in extent, was purchased in 1900 for £44,238, the price being £1,150 per acre, a comparatively high figure for land for working-class cottages. The development of the estate has been completed, and in all 1,229 cottages and four shops have been built, with accommodation for 8,768 persons. The principal streets are 45 ft. wide lined with plane trees, the other streets being 40 ft. wide.

The purchase of estates outside the county boundary is permissible under the Housing Acts, and the first to be acquired was the Norbury Estate, situate about two miles from Croydon and about seven miles from Charing Cross. About 17 acres have been developed, providing accommodation for 3,638 persons in 498 cottages, and the scheme approved for development of the remaining 11 acres of the estate provides for the accommodation of 1,869 persons in 264 cottages and two shops. The strain of finance during the war has so far prevented the completion of the last section of this estate.

The largest estate purchased for housing purposes by the Council is situate in Tottenham, Wood Green, and Edmonton. It is five miles north of the county boundary, about six and a half miles from Charing Cross, one mile from Wood Green station, and half a mile from Bruce Grove station. The estate consists of two sections a quarter of a mile apart, the northern section containing 49 acres and the southern 177 acres. The purchase price for the property was £90,225, or at the rate of £400 per acre, the owner requiring that both sections should be taken. As the northern section would be difficult to develop for building purposes, the Local Government Board in 1911 consented to it being sold, but it has not yet been disposed of. Development of the estate has up to the present been confined to a wide strip of the southern portion, where roads and sewers have been constructed sufficient to enable about 48 acres to be covered, and on about 40 acres (including 3⅓ acres laid out as a public garden), 963 cottages have been erected, providing accommodation for 7,524 persons. The Local Government Board has consented to the provision of fourteen shops on the estate, and five have been erected on the Lordship Lane frontage. Administrative buildings have also been erected. The roads have been so planned that the majority of the blocks of cottages run north and south, and each frontage of the buildings therefore receives direct sunlight. At the junction of Awlfield and Risley Avenues the cottages have been arranged in angle blocks, with open spaces in front, and in other cases the arrangement is in shallow quadrangles, with open spaces bordering on the road. The estate garden is turfed for tennis and bowls and surrounded by raised terraces and flower gardens.

The estate at Old Oak Common Lane, Hammersmith, is the most recent, and being perhaps on that account more interesting, may merit a more detailed description. It is situate about five miles from Charing Cross and is bounded on the north by Wormwood Scrubs, an open space of about 215 acres. As the ground rises towards the west, extensive views can be obtained. The estate originally contained about 54¼ acres, the purchase price being £29,858 (about £550 per acre), but the Great Western Railway Company subsequently obtained running powers for a new railway to cross the estate diagonally, and acquired nearly eight acres for this purpose, paying the Council £10,500 in respect of the land and the damage sustained by the estate. Development of the section west of the railway is now completed, except for a site temporarily occupied by a school. This section is about fourteen acres in extent. Five shops and 319 cottages and cottage flats have been provided, accommodating 2,231 persons. Of the cottages, 65 contains five rooms, scullery, and bath, let at 11*s.* 6*d.* to 13*s.* per week; 105 have four rooms, scullery, and bath, let at 9*s.* to 11*s.* per week; 106 have three rooms and scullery, at 6*s.* 6*d.* to 9*s.* 6*d.* per week; 27 are two-room flats, let at 4*s.* 6*d.* and 5*s.* a week; and 16 are one-room flats, let at 4*s.* a week. The Old Oak estate may be regarded as embodying the most recent developments in cottage housing in London, and in framing the scheme the policy adopted was to endeavour to meet the demands for smaller cottages, which can be let at rents within the reach of those earning 25*s.* to 30*s.* a week. It was thought that only a small number of the larger type of cottage, for which a rent of 11*s.* 6*d.* to 13*s.* a week is charged, should be erected, and that about one-third of the total number should be three-roomed cottages, to be let at rents ranging from 6*s.* 6*d.* to 9*s.* 6*d.* a week. The rents are inclusive of rates, taxes, and water supply. The needs of smaller families of the poorer classes requiring only one or two rooms were also considered, and as an experiment a limited number of tenements of one, two, and three rooms, at low rents, are provided. The smallest type of one-room cottage flat, with a separate scullery and water-closet, is let at a

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rent of 4s. a week. It is not thought that these one-room tenements are adapted to the requirements of married couples with young children, and therefore their occupation is restricted to old married couples or to two persons of the same sex. One person living alone or an adult with one young child are, of course, eligible as tenants. The scheme for the section east of the railway provides for the erection of 721 cottages with two shops (one designed for a baker and to be fitted with a modern bakehouse). This section will accommodate 5,330 persons. A school will be provided on the estate, and a site has been reserved for the erection of a church by the Ecclesiastical Commissioners. It may be stated that up to now the development of this estate has met with the greatest success, a list having to be kept of prospective tenants waiting for the erection of the cottages. Some of the cottages have been allocated as the subject of an experiment for enabling the tenants to purchase leases of their houses.

In the development of these estates every endeavour has been made to combine commercial and architectural success, and variety in planning and in treatment of the elevations has been consistently aimed at. I should wish to take this opportunity of emphasising one point in particular—that in no case has any street on the County Council's estate been constructed of less than the minimum width required by the local building act or by-laws, and in many cases the width has been voluntarily made considerably greater. One hears it persistently argued that by-laws are too arbitrary and extravagant, and that in streets which are not intended for heavy traffic, the minimum width required by the by-laws might be reduced. I am not of that opinion, as I consider that narrow streets become alleys where the free circulation of air is, to say the least, impeded. I venture to submit that the same criticism might be applied to some designs for laying out estates, which have been influenced by a praiseworthy desire to escape from the old-fashioned rectangular grid-iron plan of the speculative builder. To secure a more artistic grouping of building, however, streets are formed of snake-like curvature and with squares or enclosed places to which one outlet only is provided. The comparatively direct street can be treated without monotony, and if a liberal width is assigned to it the avoidance of traffic difficulties which may hereafter arise is ensured. A plentiful supply of fresh air will probably prove more beneficial to the working man than a vista, and it should not be impossible to combine the two.

A feature of the County Council's estates is that each cottage has its own plot of ground at the rear. It may be a matter for argument whether the provision of an open space—of which examples may be found near London—for the common use of the tenants surrounding it is preferable to the backyard or garden. The latter may present problems in neatness and orderly appearance, and may not offer a view from the house windows equal to that of a well-kept open space, but the privacy of a back garden is undoubtedly regarded as a great asset by the tenants on the Council's estate.

The provision of accommodation under Part III. of the Housing Act, 1890, has usually been looked upon as entirely optional or voluntary on the part of the local authority. The Housing and Town Planning Act of 1909, however, provided for cases of default where four inhabitant householders of an area complained to the Local Government Board that the local authority have failed to exercise their powers where those powers ought to have been exercised. Before deciding that an authority have so failed, the Board must take into consideration the necessity for further accommodation for the housing of the working classes in the district, the probability that the required accommodation will not be otherwise provided, any other circumstances of the case, and whether, having regard to the liability which will be incurred, it is prudent for the authority to undertake the provision of such accommodation. If, after holding a public inquiry, the board are satisfied of failure on the part of the local authority, the board may make an order directing the authority to carry out works to remedy the default. That these powers have been of considerable assistance in securing the provision and improvement of cottage homes throughout the country can be seen from the last report of the Local Government Board, who have also shown much activity in the collection of general information as to housing conditions in England and Wales. Three years ago, in many rural districts, notifications were posted of public inquiries into the sufficiency of housing in the district. I am not aware of the official result of such inquiries, but in the same part of the country which I recently visited, and where I had noted the announcement of official inquiries, I was invited to make an inspection of an estate which is being built by a local landowner. This not only embraced the provision of first-class houses, orchards, a suitable area of ground for cultivation, with piggeries and poultry accommodation of the most modern type to each cottage, but the whole project was laid out in a workmanlike manner, on sound principles of town planning. The estate was being dealt with in a completely voluntary spirit and for the workers' benefit, and this exemplifies one of the useful effects of that Act.

What inevitably must the conclusion be? I am sanguine enough to think that when you compare the value given from either an educational, a social, or an independent aspect, the proper way to house the workers, wherever it is practicable, is at the outskirts of the city or town, where convenient transit should be made a part of the scheme. I am aware that many will talk of the loss of time and expense in travelling, &c. I am going to add my opinion that the public would be healthier and better if they walked more. Apart from the question of land value, on which the accommodation is built, there is on the fringe of the county the further marked economy of the building works. Having the environment in mind and the physical and moral advantage to the family, which method do you think the great sanitary reformer Chadwick would have chosen? I have long ago concluded in my own mind that the weight of opinion must go with the suburban cottage.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An Ancient and Historic Buildings Committee was recently appointed by the Royal Institute of the Architects of Ireland. The following statement has been prepared by the Hon. Secretary, Mr. P. J. Lynch, M.R.I.A., F.R.I.A.I., and adopted for publication:—

It is a matter for congratulation that a committee dealing with the subject of Ancient and Historic Buildings should be formed within this Institute. Interest in the subject continues to increase, and the Institute is naturally the most competent body to guide public opinion. The Royal Society of Antiquaries of Ireland, and, to some extent, the Royal Irish Academy, are engaged in the study of ancient and historic buildings, but both bodies view them mainly from an archæological standpoint. The attention of this Institute is chiefly directed to the æsthetic side of the subject, and considerations bearing on archæology are confined to architectural history. There are also many structures of architectural and historic interest claiming attention, which are outside the scope of either the Society or the Academy, in some cases because they do not consider the buildings "ancient," while others may be in use or occupation, such as churches or buildings of the Georgian period, but any of these may at some time need protection. It is therefore of great importance that Borough Councils, County Councils, ecclesiastical authorities, and the public generally should have some expert opinion to guide them, should the necessity arise.

The Institute is imperatively called on at the present time to give attention to this subject, owing to the danger to existing buildings of architectural interest through the operation of the Land Purchase Act in Ireland, and the total neglect of this country in all recent legislation on the preservation of ancient buildings. It is to be regretted that such a committee as this was not formed some years ago, when the Institute might have raised its voice successfully in protest against Ireland being deprived of a Royal Commission, such as those which have been engaged in making a complete survey of the ancient buildings in England, Scotland, and Wales, and perhaps succeeded in having the Ancient Monuments Consolidation and Amendment Act of 1913 applied to Ireland, where some improvement in legislation is so much required. It may safely be said that, at the present day in Ireland, there is no legal power to prevent the decay, disfigurement, or demolition of any ancient building, no matter how great its architectural or historical importance, should the owner so desire.

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Very little appears to be known by the general public as to the laws regarding the preservation of ancient buildings in Ireland, it being almost universally believed that the Board of Works, in addition to its other sins of omission, is responsible for the condition of all the ancient buildings through the country. It may be well, therefore, to summarise the legal provisions which now exist for the protection of ancient buildings.

Under the Irish Church Act of 1869, several ruined churches and abbeys, the property of the Established Church, were vested in the Board of Works, and a sum of money from the Church funds was invested, the interest on which is applied to their repair and preservation. Under the Acts of 1882 and 1892, which applied to the United Kingdom, the Board of Works have power to become the guardians of any ancient building vested in them by the owner. The Local Government Ireland Act of 1898 gave County Councils powers similar to those of the Board of Works in such cases. The Land Purchase Act of 1903, by which the ownership of many ancient buildings changed hands, it was thought would lead to the vesting of all of these, either in the Board of Works or the County Councils; but it has proved more a danger than a protection to our ancient monuments, owing in a great measure to the defects in the system of scheduling and surveying them, as provided by the Act. This failure of the Act was fully explained in a correspondence between the Chief Secretary for Ireland and the Hon. Secs. of the Royal Society of Antiquaries, Ireland, in 1912, and published in the Journal of the Society (vol. xliii., p. 88).

It was found in England that the Acts of 1882 and 1892 would not work, and amendments were called for. A Commission of Inquiry was held, with the result that the Ancient Monuments Consolidation and Amendment Act was passed in 1913; but, strange to say, no effort was made to have the Act applied to Ireland, or in any way to improve the legislation affecting this country. This amending Act gives the Commissioners of Works in Great Britain power, if they consider it desirable, to give advice with reference to the treatment of a building, and to superintend the execution of the work, free of all charges, except for out-of-pocket expenses. Secondly, the owner of a building included in a list to be prepared and published by the Commissioners from time to time is compelled to give notice to the Commissioners of his intention to carry out any work of demolition, removal, alteration or addition, and is prohibited from commencing the work for a period of one month, thus enabling the Commissioners to satisfy themselves that the proposed work will not be injurious. Lastly, the Commissioners may on learning that a monument of national importance is in danger of destruction, or removal, or damage from neglect or injudicious treatment, protect it by the issue of a Preservation Order. Whilst that order is in force the owner may not demolish, or remove, the monument, or carry out any work in connection with it, without the written consent of the Commissioners, and further, if the monument is liable, owing to the neglect of the owner, to fall into decay, the Commissioners may themselves undertake its guardianship. Another most important feature of the Act is a provision for the constitution of "Advisory Boards, representative of the expert opinion of the country, whose functions will be to draw the attention of the Commissioners to any monument of national importance which is in danger, with a view to the issue of a Preservation Order; to aid them in the preparation of the list of ancient monuments referred to above; and to examine the proposals of local authorities in dealing with ancient monuments." It is much to be regretted that this Act does not apply to Ireland.

The Advisory Committee of experts is a very valuable provision, and the idea was to some extent anticipated in Ireland, as such a Committee, consisting of two representatives of the Royal Irish Academy and two from the Royal Society of Antiquaries, was appointed to confer with the Board of Works on all matters connected with national monuments. I believe this Committee was appointed on the suggestion of Dr. Cochrane, the Inspector of National Monuments, to whose mature judgment and whole-hearted service since his appointment to that important position we owe the success which is associated with this work in late years, and whom I am pleased to see is a member of this Committee. However, the Advisory Committee in Ireland has not met for many years, as having no legal sanction it is only summoned when the Board of Works consider it necessary.

The Town Planning Act in England makes special provision for the retention of ancient buildings, but here again we find an Act of great importance to the architectural profession which does not apply to Ireland; so that in any town or city improvements that may be made in this country, the fate of such buildings as are of architectural interest is altogether in the hands of the municipal authorities.

Influenced, no doubt, by the questions raised at the Commission of Inquiry held previous to the passing of the Amendment Act of 1913, relating to work carried out in the cathedrals and parish churches of Great Britain, the Archbishops of Canterbury and York in June 1913 appointed Sir Lewis Dibdin, D.C.L., F.S.A., Dean of the Arches, in conjunction with other Diocesan Chancellors, "to ascertain what steps are taken on the issue of faculties in the different dioceses, to secure due protection, both on archæological and artistic grounds, for church fabrics which have to undergo repair, or in which changes are being made, and to report to their Graces the information acquired, together with any recommendations which the facts collected might suggest." The Committee in their report state that they directed a series of questions to every Bishop and Chancellor of the Church of England, and had the advantage of a full discussion with Mr. Walter Tapper, F.R.I.B.A., and Mr. Ernest Newton, President R.I.B.A., and received valuable information from Mr. W. D. Caröe, F.S.A., F.R.I.B.A. Amongst the recommendations made by this Committee for the improvement of procedure in Faculty Suits was: "That in each diocese an honorary advisory body be constituted or appointed by the Bishop, to which the Chancellor might apply at his discretion for advice upon any architectural, archæological, historical, and artistic matters relating to the churches as to which faculties are sought." Some such precautions are also very necessary in Ireland when any one of our old cathedrals or churches is about being altered or repaired.

When we consider the state of the law regarding the protection of ancient buildings in Ireland the necessity for some amendment is obvious, and it is to be hoped that this Committee will assist in influencing public opinion in that direction.

This Committee can also co-operate in promoting the study of the architecture of Ireland at different periods, so necessary for a due appreciation of the examples which remain to us. This should include the architecture of the Georgian period. The Georgian Society has succeeded in rescuing many of the remains of that period from oblivion, but that Society has finished its labours, and it is desirable to continue such work in a modified form for the benefit of the students of architecture.

I think I have now enumerated most of the considerations which should influence this Committee in deciding on the course of procedure it will adopt when dealing with the many details of this interesting and important subject.

A LINCOLNSHIRE MANSION VALUATION.

Mr. Howard Martin, as Referee, has issued his decision in an appeal of the Rev. Vere F. Willson, brother and executor of the late General Sir Mildmay Willson, against the valuation by the Commissioners of Inland Revenue of Ranceby Hall, lodge, and grounds of 17 acres, 2 roods, 12 poles, near Sleaford, under the Finance Act, 1910.

The Inland Revenue Commissioners, after negotiation, fixed the valuation at £12,000, and there was an appeal by the Rev. Vere Willson, who had offered to pay duty on £7,000.

The Referee has decided that the valuation to be placed on the property in question be £9,475.

The principal inquiry by the Referee took place at the Surveyors' Institution, and the case was before him on three occasions. Considerable evidence was given on both sides, and for the appellant several expert witnesses declared that the value of the property was less than £7,000. On behalf of the Inland Revenue, valuers placed the value at a sum in excess of £12,000.

It was contended, for the appellant, that the presence of the Kesteven County Asylum a mile and a half away had a highly depreciatory effect upon the value of the property. This was not admitted by the Inland Revenue, whose witnesses, however, said it was a consideration to be borne in mind—and they had borne it in mind—in arriving at their valuations.

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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Roll of Honour.

Sir,—I notice in your issue of last week you have announced that Lieut. G. H. Cholmeley, of the London Rifle Brigade, has been killed.

I am very glad to be able to contradict this, and to inform you that Lieut. Cholmeley (who was in my office when the war broke out) is quite well, having recovered from the effects of frost-bite, which he suffered from after a long spell in the trenches of Flanders last winter.

Your announcement was evidently made under a misapprehension.—Yours, &c., E. Guy Dawber.

22 Buckingham Street, Adelphi, London, W.C.:
November 24, 1915.

[We regret that this error should have been allowed to find its way into our Supplementary Roll of Honour. Lieut. Cholmeley was correctly marked as "Invalided" in the original list from which the alphabetical roll was drawn up. Our only consolation can be that it is the first clerical mistake to which our attention has been drawn out of something like two thousand names.—Ed.]

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Cornwall.

Falmouth.—Motor garage, Wood Lane. Mr. E. H. Moss, builder, Vale.

The "Mason's Arms" Inn: alterations. Messrs. Wakeham & Son, builders, Swanpool Street.

Truro.—"Hastoe House": alterations.

Derbyshire.

Brampton. — Church. Messrs. Naylor & Sale, FF.R.I.B.A., architects, Irongate, Derby.

Hathersage.—R.C. Schools: extensions.

Dorset.

Blandford.—The "George" Inn, Salisbury Street: alterations. Messrs. Norman & Son, builders, 16 East Street.

Durham.

Jarrow.—No. 1 Hill Street: alterations, for Mr. R. Brogdon.

Essex.

Hornchurch.—Two houses, Station Road: additions, for Mr. Perfect.

Tilbury.—Five hundred Council houses. Messrs. Winter (of Southend) & Wadman (of New Cross), acting architects.

Hampshire.

Eastleigh.—Y.M.C.A. hall, Romney Road and Market Street Corner.

Farnborough.—"Fairfax House," Church Road: addition, for Mr. Woodhouse.

Gosport.—Offices, The Hard: extension, for the Port of Portsmouth Steam Launch Company.

Hertfordshire.

Letchworth.—Foster Instrument Factory: extension.

Pirton.—Glove factory, for Messrs. Partridge & Son.

St. Albans.—Children's homes, for B.G.

House, Woodstock Road, for Mr. J. Elwood.

"The Laurels," Upper Marlborough Road: additions and alterations, for Mr. A. E. Gibbs.

Old County Police Station, Chequer Street: additions and alterations, for the Corporation.

Premises, Lower Dagnall Street: additions and alterations, for Mr. C. Gentle.

Kent.

Broadstairs.—St. Peter's Hand Laundry: alterations.

Erith.—Seventy-two Council houses. Council surveyor.

Faversham.—Brewery Offices, Court Street: additions. Messrs. Pover & Son, architects, 54 and 55 Park Street.

Lancashire.

Blackburn.—Church.

Haslingden.—The "Park" Inn, Helmshore Road: alterations, for Messrs. John Kenyon, Ltd.

Rochdale.—The Healey Mill: offices, for Messrs. Bright.

Norfolk.

King's Lynn.—Motor garage, Gaywood Road, for the Working Men's Co-operative Society.

Northumberland.

Hexham.—Prudhoe Hall: extension (£2,850), for the Northern Counties Joint Poor Law Committee.

Somerset.

Taunton.—Premises, Fore Street, for Lloyds Bank, Ltd.

Motor-house, Kingston Road: alterations, for the Somerset Sanitary Steam Laundry Company.

Staffordshire.

Burntwood.—Two houses, Cannock Road, for Mr. F. Rostance.

Surrey.

Guildford.—Premises: rebuilding, for Messrs. Reeks & Co.

Sussex.

Bexhill.—Bungalow, Cantelupe Road, for Mr. E. Gray.

Houses, Sutherland Avenue and Cooden Drive, for Mr. G. Maynard.

"Lake House" and "Page's Cottage": additions, for Mr. J. B. Wall.

Bognor.—Proposed military hospital, Victoria Drive.

Uckfield.—Proposed isolation hospital.

Warwickshire.

Nuneaton.—Brewery: extension. Messrs. Wood & Kendrick, architects, 57 Colmore Row, Birmingham.

Yorkshire.

Goole.—House, George Street, for the Aire and Calder Navigation Board.

Huddersfield.—Milnsbridge Chemical Works, Milnsbridge: additions.

Hull.—Mill, Cleveland Street. Messrs. Gelder & Kirkham, FF.R.I.B.A., architects, 120 Alfred Gelder Street.

Richmond.—Police Station, &c.: extension.

Sheffield.—Stores, Carlisle Road, for Messrs. Coope Bros.

SCOTLAND.

Aberdeen.—Six houses, Brighton Place. Messrs. D. & J. R. McMillan, F.R.I.B.A., architects, 105 Crown Street.

Store, Spring Garden, for Messrs. W. McKinnon & Co., Ltd.

Duffus.—Keam Board School: alterations.

Dundee.—Garage, Forfar Road, for Mr. J. Williamson.

Glasgow.—Buildings, Shuna Street, for the Cassel Cyanide Company, Ltd.

Montrose.—E.U. Church: conversion into Council Offices.

IRELAND.

Callan.—Motor garage, for Mr. J. Lanigan.

Captain Harry Davidson Laing, 6th Battalion the Gordon Highlanders, of Inverurie, plumber, killed in France on March 12, left personal property of the gross value of £6,604.

Plans for wooden houses for Belgian workers at Birtley have been presented to the Chester-le-Street Rural District Council as follows: There will be 1,262 houses for two workers each; sixty hostels for fifteen workers each; seventy-three houses for foremen; and a camp for 1,008 persons. Each class of house will be painted a different colour, and the total population to be accommodated will be 8,500, which is practically the present population of Birtley.

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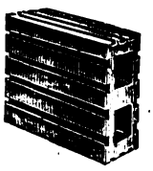
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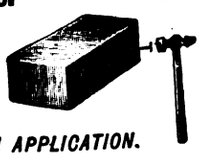
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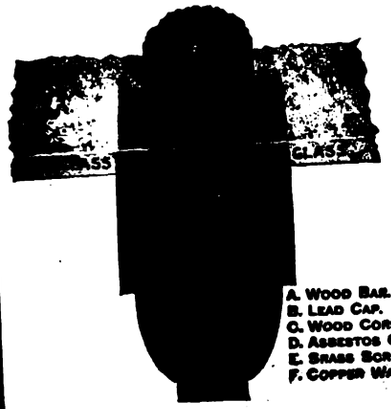
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FORTHCOMING EVENTS.

Friday, December 3.

Historical Association : Paper entitled "London during the Time of Pepys," by Dr. H. B. Wheatley, D.C.L., F.S.A., at 22 Russell Square, W.C., at 5.30 P.M.

Saturday, December 4.

Horniman Museum : Paper entitled "St. Sophia, Constantinople, and the Mosques of Constantinople and Brusa," by Professor F. M. Simpson, F.R.I.B.A., at 3.30 P.M.

Monday, December 6.

Victoria and Albert Museum : University Extension Lecture X., on "The Chateaux on the Loire and other early French Renaissance Buildings," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Wednesday, December 8.

Manchester Society of Architects : Paper entitled "The Necessity for Proportion," by Mr. C. E. Elcock, F.R.I.B.A., at 6.50 P.M.

Thursday, December 9.

Society of Architects : Paper entitled "The Conversion of Unwieldy Houses into Compact Maisonettes," by Mr. Herbert Freyberg, F.S.I., at 5 P.M.

British Museum : University Extension Lecture XI., on "The Corinthian Order," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

ON BRIDGES.

A BRIDGE has always one characteristic. It speaks to us, whether consciously or subconsciously, of a difficulty overcome, an achievement of victory over an obstacle, a triumph of man's skill, intelligence, and labour over the forces of Nature as in the crossing of a stream, the spanning of a chasm or ravine. Little wonder therefore that a bridge is always an object of interest, and that this interest has attracted the attentive study of many individuals who from the subject of their study are termed "pontists," defined by Mr. W. Shaw Sparrow as "devotees of bridges and their history." In a sense we are all pontists, from the universality of the interest that bridges excite, but we may allow the term to those only who are so enwrapt by that interest as to become devotees.

There are many points of view from which the study of bridges and their history can be approached, but the thorough pontist will embrace them all, though it may be difficult to find in any one individual sufficient ability to present the whole for the guidance and delectation of others. Therefore it is gratifying to find that an artist like Mr. Frank Brangwyn and a *littérateur* like Mr. Shaw Sparrow, both ardent pontists, have collaborated to produce for our enjoyment the sumptuous "Book of Bridges," which Mr. John Lane has just published.* The thirty-six admirably reproduced colour-plates and a similar number of black-and-white illustrations from Mr. Brangwyn's drawings of themselves are a veritable feast of delight from their appreciation of the artistic aspect of bridges, whilst the literary contribution by Mr. Sparrow to the volume is, as one would expect, equally pregnant of pleasure from its side.

We have spoken of the bridge as a token of man's triumph over Nature, but it must not be forgotten that Nature herself in her caprice has provided man with examples of arched bridges as examples, if not models, as in the Pont d'Arc, over the river Ardèche, Durdle Door in our own country at Lulworth, and many other instances. Nor can it be doubted that the earliest bridges used by primitive man were of Nature's fashioning, the fallen tree-trunk over a stream or ravine. So it might be said that man, as a bridge builder, is but the copyist of Nature. Stepping-stones with boulders spanning their intervals may well be deemed the prototype of all lintel bridges, and the pendent bridge of lianes and other tough creeping plants growing from tree to tree, and on occasion even crossing a ravine, is the ancestor of our much-lauded triumph of modern engineering, the suspension bridge.

The accidentally or Nature-placed tree-trunk over a stream would soon be copied by an intelligent prehistoric man, who with his flint axe would fell a conveniently upstanding denizen of the forest to provide a desired crossing, and as rivers in prehistoric times were many of them wide and shallow, as we may see for ourselves in the watersheds of our present-day waterways which by mordant action of their beds have now become narrow and deep, it would not be a long step from the single tree to a succession borne on rough heaps of stone as piers. Such primitive constructions were the ancestors of the famous bridge built by Trajan over the Danube, just below the rapids of the Iron Gate, in the prosecution of his successful wars against the Dacians. This bridge had an architect, Apollodorus of Damascus, who also designed the Trajan column on which the bridge is conventionally represented, thus aiding our comprehension of the account given by Dion Cassius in his history.

Closely allied to the tree-bridge on stone piers would be the tree-bridge on timber piles, which was well within the compass of craftsmanship attained by the lake-dwellers of the Neolithic period, whose descendants continued the construction of lake-villages down to the late Celtic period, which saw the coming of the Romans, as at Glastonbury.

The "clapper" bridges of Dartmoor doubtless date back their ancestry to the work of Bronze Age men, when, as antiquaries tell us, pastoral life on Dartmoor was very active and could scarcely have been pursued without bridges between the farms. So the pontist can pursue the line of historic development of bridge types and bridge construction back into the unrecorded activities of prehistoric man.

An interesting branch of pontism is the study of Roman activity in bridge building, and amongst their works are to be found some of the most impressive bridge structures the world has seen, the Pont du Gard, Trajan's bridge at Alcantara, and the aqueduct at Segovia, for example. It is remarkable how many examples of Roman daring and skill in construction are to be found amongst the Spanish aqueducts and other bridges. France, too, is rich in fine relics of Roman bridge building. Our own country, on the other hand, seems to have been niggardly treated by the Roman conquerors, most of the bridges they used here being of timber, doubtless many of Celtic origin and construction, whilst the stone bridges of which remains exist point to a type of narrow bridge without parapets and of no surpassing grandeur in size.

* "A Book on Bridges" By Frank Brangwyn, A.R.A., and Walter Shaw Sparrow. (London: John Lane. 21s. net.)

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From the artistic point of view the varied uses to which bridges have been put or with which they have been associated form a classification of more fruitful character than the historical or constructional point of view. Thus we have the bridge with houses, as old London Bridge, the example illustrated by Frank Brangwyn at Kreuznach, and the High Bridge at Lincoln; bridges with mills form a class that almost always afford picturesque effects; then we have bridges with chapels, as at Rotherham, Wakefield, Pisa and Avignon, and elsewhere; bridges with shrines may be regarded as variants of the last or as a separate class; the bridge of shops, of which the famous Rialto is the outstanding example, is a sub-class, if you will, to the bridge with houses. Lastly comes the war bridge, which, in its mediæval form with its guardian towers, affords perhaps above all a wealth of subject in the domain of the picturesque.

A frequent source of picturesqueness in mediæval bridges was the provision of recesses built out from the roadway over the piers, a necessity in the narrow widths to which such bridges, for the sake of economy, either in construction or defence, were commonly restricted. Narrow bridges were more easily defended than wide ones, and so this peculiarity of mediæval bridges may be deemed as an appanage of their warlike character. It is hardly necessary to say that the picturesqueness of mediæval war bridges has led to their wide representation by Mr. Brangwyn in the "Book of Bridges."

The contrast between mediæval bridges and modern has inspired Mr. Sparrow in his final chapter with a discourse on the defenceless situation of many of our important links in communications. "Modern bridges," he says, "everywhere are anti-social. When war is afoot they imperil the best-made plans of strategists; and even in strikes they have to be guarded by soldiers as if they were convents where dethroned queens lived unhappily with suffragette princesses."

We need not follow Mr. Sparrow in his discursive philosophising on the moral and ethical aspects of bridges and their connections, but obviously there is room for much ingenious speculation in the consideration of social pontism.

NOTES AND COMMENTS.

THERE can be little doubt that there is need for a moratorium in respect of building contracts, more especially of contracts to build on other people's land in consideration of the granting of a building lease. Many such contracts were in various stages of negotiation or fulfilment at the outbreak of war. Some had their finances arranged and a commencement made with building. These have furnished much of such activity as has been seen in the building trade during the war. Others had not reached such a point in negotiation as to bind anybody to anything. These have been dropped. A third group had arrived at the stage of binding contracts to build, but the financing and building arrangements were not completed. For these there is need of a moratorium, as it appears that certain landowners, including the Corporation of the City of London, are attempting to exact immediate performance of contracts to build made under peace conditions which it is impossible for speculators or investors to carry out during war, and which it would not be to the advantage of the nation should be carried out now even if it were possible. The Government has long ago laid down the principle that building is one of the national industries which should be restricted in war-time, and an Order under the Defence of the Realm Act is desirable postponing all contracts for speculative building till some period after the termination of the war.

The whole world of art is to be congratulated on the completion of the Alma-Tadema Memorial by the opening of the "Alma-Tadema Memorial Library" in the Victoria and Albert Museum, and owes a debt of gratitude to the painter's daughters for the patriotic generosity which has rendered the accomplishment of the memorial so quickly possible by accepting a mere fragment of the value as purchase money for the valuable library. This library has been accumulated with great care over a long period of years, and it was the artist's wish that, if possible, it should not be dispersed after his death. An offer of the collection, together with the bust, was made to the Victoria and Albert Museum, and was gratefully accepted as the "Alma-Tadema Memorial Library." The library contains over 4,000 volumes and pamphlets, dealing principally with the monumental and artistic side of the archæology of antiquity. A considerable number of books deal with the painting of the Historical School of which Sir Laurence was such a distinguished exponent, and an important feature of the collection is a series of portfolios containing photographs and sketches by the artist of details of classical art and life which interested him so deeply. Besides its intrinsic value as a collection of books, the library has the additional interest of representing the source from which the artist drew many of the facts and details of his compositions.

An action between Messrs. E. C. Morgan & Sons, of Glasgow, builders of one of the towers and spire at St. Mary's Cathedral, Edinburgh, and Messrs. Herbertsons, Ltd., the quarry-owners from whom the stone should have been obtained, illustrates the difficulty that architects have, without the assistance of a very sharp, very capable, and very honest clerk of the works in ensuring the use of a particular stone upon a particular job. The builders were bound under their contract with the Cathedral authorities to use nothing but Blackpasture stone, unless with the express approval of the architect, but the quarry-owners discovered that the builders were ordering considerable quantities of stone from a rival quarry and suspected—quite rightly, as it turned out—that this was being done without the sanction of the architect. Naturally Messrs. Herbertsons objected to this, because, as they reasonably said in a letter to the architect, in the event of the other stone wasting their stone would be condemned. The surreptitious introduction of this other stone by the builders was undoubtedly the inducing cause of the strained relations between the parties. It was undoubted that from the beginning of September 1913 onwards the builders had been using this other stone in large quantities without the approval of the architect, and for some time at least contrary to his express desire.

In the "Journal of the Royal Society of Arts" there is a reference to some experiments on paint which we should like to see verified by other observers. The conclusion, if correct, is that on ironwork one coat of paint is better than two, two than three, three than four. The more paint, the less preservation.

The Egypt Exploration Fund has during the war, for want of funds, been obliged to curtail its activities. At the annual general meeting it was reported that the membership has fallen from 321 to 260, the income has decreased by £575, apart from special donations, and the cost of publications having considerably increased, there remained an adverse balance of £658. No work had been done in Egypt during the past winter by the Fund as a whole, as it was not considered appropriate to appeal for subscriptions for the purpose. The American Committee, however, being under no obligation to save, had gone on with its special work at Balabish, under Professor Whittemore and Mr. Wainwright. Their most important discovery was that of a "pan-grave" cemetery, which yielded interesting Egyptian objects of Middle Kingdom types, besides those of the "pan-grave" people themselves, among which was a pot of pure "pre-dynastic" type. An eighteenth

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dynasty cemetery was also explored, which yielded Mycenæan "Bügel-Kannen," and among many other objects, one which was of great interest, a bead of clear glass, which showed that transparent glass was undoubtedly already manufactured at that early period.

It is regrettable to read an account of the doings of some Americans during the enforced inactivity of the Egypt Exploration Fund which is given in "Ancient Egypt" (Professor Flinders Petrie, F.R.S., F.B.A., editor), the quarterly publication of the Egyptian Exploration Fund, as follows:—

"A strange development has arisen in Egypt regarding British excavations. For six years the British School of Archæology in Egypt devoted a large part of its time and resources to opening up the site of Memphis, ascertaining the topography, and negotiating with private owners for rights to work in their land. When the new law of antiquities was passed—which would deprive work in private lands of half its returns—an inquiry was made of Sir Gaston Maspero whether that law applied to the very costly excavations under water. No reply was given to the inquiry, and thus the work was hindered for the season 1914.

"On the outbreak of the war all of the British School staff took service at once, and the excavations were necessarily suspended. At this national crisis, the Philadelphia Museum (which had received large returns from the British School work), without a word of inquiry or explanation, acquired from the Department of Antiquities a site at Memphis, which had already been examined and reserved for future work by the British School. Inquiries addressed to the Department of Antiquities have been ignored. A casual quotation from an American newspaper was the only source of information regarding the acquisition and working of a site which the British School had already discovered, examined, and reserved for the future.

"Entire secrecy has always surrounded the acts, regulations, and concessions of the Archæological Committee of the Department in Egypt; but the suppression from an excavator of all news of giving away his discoveries to others is a further stroke of arbitrary treatment. On both the part of the Egyptian Government and of the Philadelphia Museum the silent attack on British excavation is a very strange course in a British Protectorate. The British School has never intended to relinquish the work at Memphis, on which so much has already been done; and to take advantage of the response of our workers to the national needs at the present moment is a course which could not have been expected unless in anti-British interests."

WAR ITEMS.

A FURTHER appeal is made by the Board of Education for books of an educational character for the British civilian prisoners of war (of whom there are some 4,000) now interned at Ruhleben, in Germany. Under the auspices of a Camp Education Department a School and a Science and Art Union have been organised among the prisoners, and in them are enrolled 1,500 students, with 150 lecturers and teachers. The educational work in the camp is divided into nine sections, and covers languages, art, science—in fact, nearly all the usual subjects of a school or college curriculum. Persons willing to contribute either books or money to this interesting and most deserving effort to help our unfortunate fellow-countrymen in Germany to relieve in a profitable manner the tedium of their confinement may obtain a circular, giving full information on the subject, by addressing a postcard to Mr. Alfred T. Davies, Board of Education, Whitehall, London, S.W., who is in charge of the arrangements for obtaining and forwarding the books to Ruhleben.

ARCHITECTURAL ASSOCIATION OF IRELAND.

AT a meeting of the Architectural Association of Ireland on the 25th ult., at the rooms, 15 South Frederick Lane, Dublin, Mr. H. G. Leask, President, in the chair, a lecture was given by Professor Steele, M.A., M.R.I.A., his subject being "Some Towns of Northern France affected by the War." He spoke of the towns first occupied temporarily by the Germans when they invaded France. These were Rouen, Amiens, Beauvais, and some others. No harm was done to these towns, at least no serious harm, and the inhabitants rejoiced at their good luck. Pictures of many of the principal buildings in these towns were shown on the screen. The lecturer then showed scenes from Soissons, Compiègne, Rheims, and other towns which suffered grievously from the bombardment. The lecture was mainly a description of the beautiful Gothic cathedrals, the architecture of which was the admiration of all beholders. The lantern slides showed these splendid buildings as they were before the Germans committed havoc upon them, and also as they are to-day, many of them in ruins. A vote of thanks was accorded to the lecturer for his interesting lecture.

ILLUSTRATIONS.

HOUSE AT CARAGH LAKE, IRELAND.

THIS is a stone-built house on a most beautiful site just overlooking the lake, from the designs of Mr. P. Morley Horder. The walls are built with many-coloured local stone, with plaster dashings, and the roof is covered with grey Westmorland slates, which tone beautifully with the wild grey character of the country. The terrace front leads down to a most beautiful and luxurious rock-garden, where every imaginable plant grows in the mild Kerry climate.

CHESHUNT COLLEGE, CAMBRIDGE.

THE drawing gives a general bird's-eye view of these buildings, the first portion only of which is completed and opened last month by Viscount Bryce. The college is built with small, hand-made, 2-inch local bricks of a warm, yellow tone with an admixture of pinkish bricks. The window-dressings and base of buildings are of stone, and the roofs are covered with grey pan tiles made locally. Mr. P. Morley Horder is the architect.

22-26 YORK PLACE, BAKER STREET, LONDON, W.

THIS imposing block of buildings has been erected on the corner site facing York Place, Marylebone Road, and Bickenhall Street, a portion of which consists of a branch office of the London County and Westminster Bank on ground floor, and suites of well-arranged light offices above, served by passenger lift; the remaining portion of the block consists of shops on the ground floor and ten suites of high-class well-appointed residential flats over, containing six and seven rooms and a spacious hall.

The flats are served by passenger and tradesmen's lifts, and are approached from the entrance in Bickenhall Street.

The buildings are faced with red brick and Portland stone, the stonework being executed by the Bath Stone Firms, Ltd.

The passenger-lifts were supplied and carried out by Messrs. Waygood & Co.

The contractor was Mr. George Neal, of Tennyson Works, Kilburn; and the architect, Mr. John Hudson, F.R.I.B.A.

MR. H. HUGHES-STANTON, A.R.A., has been elected a member of the Royal Society of Painters in Water-Colours.

AT the business meeting of the Royal Institute of British Architects on Monday last, Mr. E. Guy Dawber, honorary secretary, moved that the deep regrets of the institute at the loss of three young Associates—Lieutenants S. E. Barrow, E. H. Gibson, and G. A. Kay—be recorded. He also asked permission to move a similar resolution with regard to Captain the Hon. Sir Schomberg McDonnell, who had frequently been brought into relationship with the institute.

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THE CHAPELS AND ALTARS OF NORWICH CATHEDRAL.

By H. C. Beeching, D.D., D.Litt., Dean of Norwich.

Let me begin by making some remarks on the double title by which this Cathedral Church was known, at any rate to the end of the seventeenth century; the Church of the Holy Trinity and Christ Church. We find the same double title at the cathedral churches of Canterbury and Christ Church, Dublin, and not a few other churches. In early charters of The Priory of Holy Trinity within Aldgate grants are made to it under one or the other name indiscriminately. The famous priory now called Christchurch in Hampshire bears on its seal the dedication to the Holy Trinity. There was a Holy Trinity priory at Ipswich suppressed to found Wolsey's College at Oxford, and the house (now a museum) which occupies its site is still called Christ Church. It is clear there must have been some well-understood reason for a custom so widely diffused, but I have not come across any mediæval statement of the reason. It may represent the popular desire for a less abstract and more approachable object of devotion, and in this case reasonably and rightly, because it is Christ who both reveals the Father and sends the Holy Spirit; and we may remember that the most prominent feature of the mediæval representations of the Holy Trinity was the figure of the crucified Saviour.

Our first register brings the two names into connection when it tells us that Bishop Herbert "began the work of his Church in the place where now is the Chapel of Blessed Mary, and almost in the midst of that chapel, and there he made an altar in honour of St. Saviour, and laid the first stone of this building, on which was inscribed, 'In the name of Father, Son, and Holy Ghost, Amen, I, Herbert the Bishop, have placed this stone.'" The writer of this passage knew that Bishop Herbert's chapel was only about half the length of Bishop Walter Suffield's Lady chapel which replaced it; so that the altar of the chapel dedicated to St. Saviour would have come in the midst of that later chapel. The stone of which he speaks was the foundation stone of the whole Cathedral Church. The relation of St. Saviour's altar to the Trinity Church is interesting, and was probably influenced by what had recently taken place at Fécamp, where Bishop Herbert had been Prior. In 1082, five years before Herbert left Fécamp for Ramsey, the abbot of Fécamp, William de Ros, rebuilt the choir of his church, which was dedicated to the Holy Trinity, and made a new high altar, the first altar being removed lower in the choir, and re-dedicated to St. Saviour. My point is that here, as at Fécamp, the first altar was dedicated to the Holy Trinity, the second to the Saviour.

Besides this chapel of St. Saviour, Bishop Herbert's original plan provided for four others, two apsidal chapels (the present Jesus and St. Luke's Chapels) and a chapel projecting eastward from either transept. That in the north transept still survives, but is at present walled off from the church; we hope by and by to restore it to use; the other has long since disappeared. (Some of the old colour on the inside of the Norman arch may be seen above the staircase in the Chapter Clerk's office.) Of these four original chapels it is of the Jesus Chapel only that we can gather the whole history, and that I will proceed to lay before you. The first thing to be clear about is that Jesus Chapels represent a very late form of devotion. The "Jesus mass" is first mentioned in an indulgence given by Robert Hallum, Bishop of Sarum, in 1411, "for singing the mass of the mellifluous name of Jesus,"* but it was not until nearer the end of that century or the beginning of the sixteenth that it became common. Then we find benefactors providing for a "Jesus mass," and sometimes a "Jesus anthem," to be sung every Friday throughout the year. At Durham and other cathedrals there was a "Jesus altar." At Westminster Abbey, as here, there was a "Jesus Chapel." The date of the Westminster one is c. 1500; the first mention I have met of our Jesus Chapel by that name is in the Report of the Bishop's visitation in 1532, when it is said to be out of repair. What, then, was the earlier dedication of the chapel? This point was ascertained by Drs. James and Jessopp from Thomas of Monmouth's life of St. William. His body is said to have been buried in a chapel designated for the worship of the martyrs, and described as "on the north side of the high altar," and "in diversorio quieto," which Dr. James paraphrases as "in a quiet place outside the procession path." There, on Easter Monday, 1154, the Bishop of Norwich dedicated an altar to the Holy Martyrs. It is not until 1274, more than a century later, that we have any account rolls, the great fire in 1272 having destroyed all there may have been earlier, and in the account of offerings in the Sacrist's rolls the altar of the Holy Martyrs does not appear. The oblations accounted for in 1274 are those from the High Altar, the altar of St. Mary in Bishop Walter Suffield's new Lady chapel, which the fire had happily not reached, and certain unspecified alms-boxes. So in 1275. In 1277, the next roll remaining, besides these there is mention of the altar of St. William. At first sight we might take this to refer to the Martyrs' Chapel, where (as we saw) he was at first buried; but it is clear from a reference of Bartholomew Cotton, of which I will speak presently, that St. William's body had already been transferred to the nave. We must assume, then, that the Chapel of the Martyrs was in 1277 out of repair, as there are no oblations from it, and when it came into use again, it seems to have been specially associated with the martyr Hippolytus and the proto-martyr, St. Stephen. St. Stephen's name first occurs in 1325. In 1364 the entry is "de cruce in capella St. Stephani."* After the year 1442 the oblations cease to be particularised in the accounts, so that we cannot fix the precise year when St. Stephen gave way to the "name of Jesus."

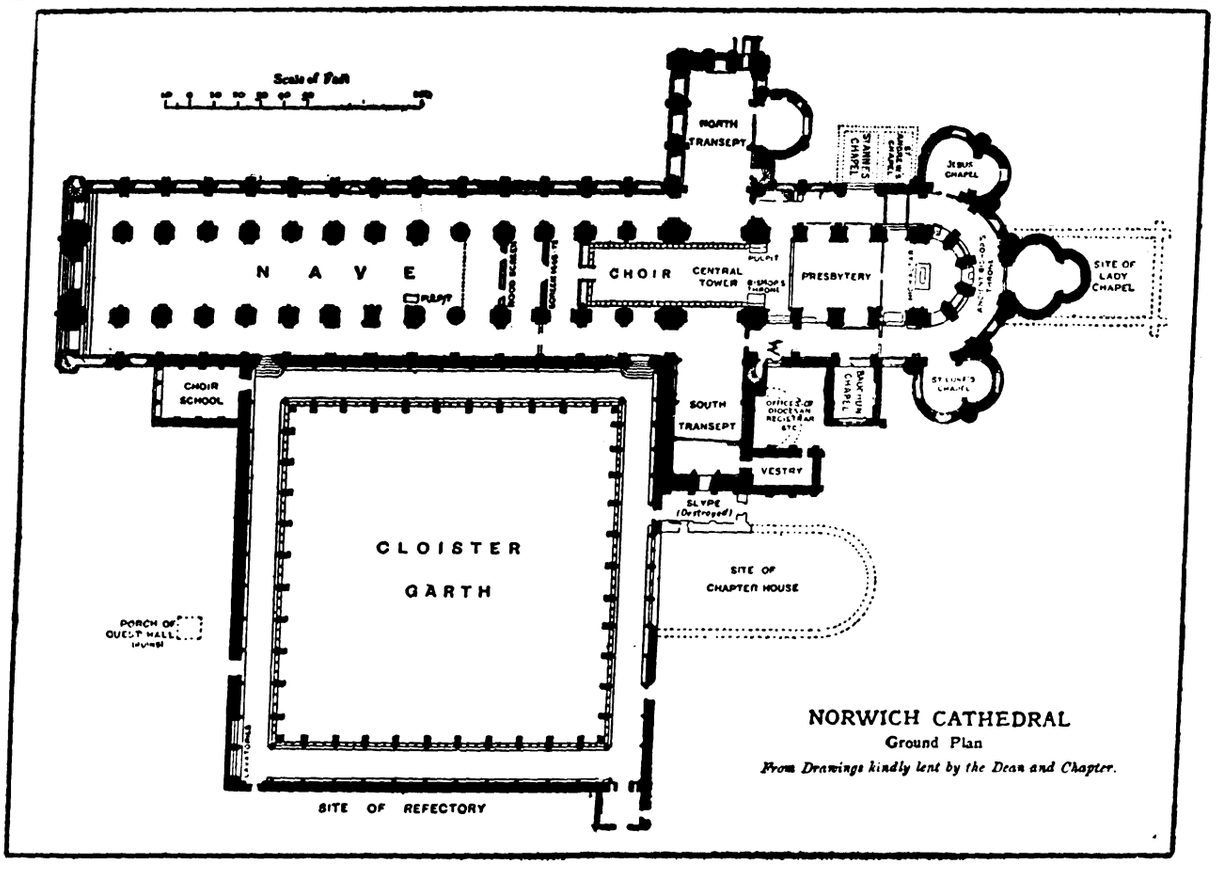
Let me say something now of the decoration of this interesting chapel. A striking feature is the heraldic colouring of the ribs of the groining, though oddly enough in all references to the heraldry of the Cathedral it has escaped notice. The vair lozenge is very prominent, but the Garter King at Arms tells me that the alternate red lozenge must be taken with it, and the whole be read as "lozengy gules and vair," which was the cognisance of Hubert de Burgh. We may infer, therefore, that the chapel had been decorated by the Great Justiciar, perhaps as a compliment to his nephew Bishop Thomas de Blumville; or of course it may be merely that Hubert de Burgh's son restored the chapel after the great fire. No less interesting are the later decorations. On either side of the altar are brackets for images, two on the north and three on the south. On the westernmost of those on the north an inscription can still be read: "Sus Vincentius." The angels supporting three of the brackets carry shields, one bearing the black cross of the Priory, and two the red cross of St. George. Now the great Norwich Guild of St. George was founded in 1385 by Bishop Henry Despenser, and we may conjecture that some re-decoration of the chapel was undertaken at that period by the Guild. Perhaps the very beautiful re-table, which bears traces of the bishop's coat of arms, was painted as part of the same scheme of decoration.

We come next to St. Luke's Chapel, in which there is little of antiquarian interest remaining. It was restored at an unfortunate epoch, the mediæval windows being removed and replaced by pseudo-Norman ones, while a century earlier its assignment as a parish church to St. Mary-in-the-Marsh was responsible for the re-

* A few dates may be interesting: 1457, Papal sanction for the feast of "Name of Jesus" on August 7; 1481, Jesus College at Rotherham; 1496, Jesus College at Cambridge. (See Henderson's "York Missal," ii. 216; article by J. Armitage Robinson, in "Church Quarterly Review," April 1907.)

* That the chapel of St. Stephen was the present Jesus Chapel, and not, as Blomefield thought, a demolished chapel further west, is made certain by a reference in 1494, to repairing the windows over St. Stephen's Chapel. The demolished chapels had no upper storey, as may be seen from the marks of the roofs on the outside wall.

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moval of some mediæval tombs. Of the tapestry which once covered the walls and passed into the possession of Mr. J. A. Repton, a well-known antiquary, and from his family to the Castle Museum, I will not trust myself to speak. I used to think that the tiles, which bear the figure of a Red Cross knight, might have been copied from an original found hard by, near the altar of St. George, but they appear to be a stock pattern designed for the restoration of the Temple Church in London.

The only mention I have found of the chapel in our obedientiary rolls comes quite late, in 1442. "Item, in uno parclos empt' ad capellam sti Lucae 6d 7." The dedication to St. Luke is remarkable, for that evangelist was not one of the popular saints in the middle ages. I know of no other cathedral which has a St. Luke's Chapel; and it would be interesting to discover whether the dedication is original. Apart from information to the contrary, we must assume that it is. Another question on which I hope some day to get light is whether Blomefield is correct in assigning this chapel to the Prior. He assigns also the Jesus Chapel to the Bishop, but there he is certainly wrong. For one thing, we know that to have been used by the people, and also when Mr. Harrod conducted excavations in the Palace grounds he found the remains of Bishop Herbert's original chapel.* But St. Luke's Chapel may have been the Prior's. Blomefield tells us that two priors were buried there, Wm. de Walsham and Nicholas de Brampton; but he does not give his authority, and Cotton, who mentions their burials, is silent as to the place. However, the tradition that two priors were buried there is an old one. Sir Thos. Browne mentions "Two substantial marble and crossed tombs, said to be two priors of the convent," and he had much of his information from a Mr. John Sandlin, who was a chorister in the days of Queen Elizabeth, so that the tradition dates back some way. These tombs are said in a note to the Rawlinson copy of the "Repertorium" in the Bodleian to have been removed about 1738 to make room for seats. The earliest guide to the Cathedral, published 1736, speaks of them as taken away "of late" to make the seats more commodious. It was perhaps the presence of these tombs that suggested Blomefield's idea that this was the Prior's Chapel; and it seems to me not unlikely. Some light may come from the shield of arms in the soffit of the arch at the entrance to the chapel, which so far has not been identified. It seems to be a red lion rampant looking to the left on a white field. Now Blomefield tells us that in his day there was a figure of a religious in the east window of the Jesus Chapel, bearing what may have been this coat—he does not say which way the lion was facing, and in his day the St. Luke's coat was covered with whitewash, so he could not make any comparison—but if this religious was the Prior of the day, and he put his arms on St. Luke's Chapel, it would be a reasonable conjecture that it was the Prior's Chapel, and that he restored it after the great fire. If St. Luke's was the Prior's Chapel, we may take it that the choice of the saint had a religious significance. I mean that if the chapel had been a popular one St. Luke would probably have been invoked as the patron of our ancient school of painting, or medicine, or perhaps of the ancient cattle market. We may presume that St. Luke's Guild met there later. Oblations are particularised from that Guild from 1465, but "Fraternities" contribute from 1419. It is worth noting that the episcopal seal of Walter de Suffield bears, for some reason, St. Luke's emblem of the ox.

We come now to the two chapels in the transepts. What their original dedications were, if they were chapels, and that in the north transept certainly was,* I have not been able to ascertain. The only references I have been able yet to find come very late.

In the Sacrist's roll for 1516, Prior Catton's new door between the ambulatory and the south transept is described as "juxta vestiarium." Now the only room large enough for a vestry near this screen is the Norman chapel in the south transept. Over this vestry there was a chamber described as "camera super vestiarium." Further to the south in this transept was another chapel (the present vestry) also with a chamber over it. The end of the transept, including the door of the present ves-

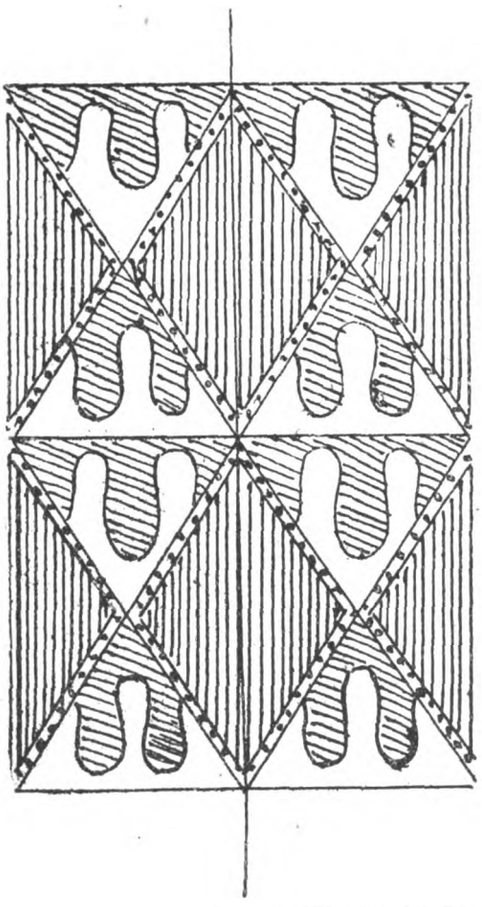
* Norfolk Archæological Society's Papers, vi. 36.

* Mr. Walter Rye tells us that he saw two skeletons exhumed when the heating apparatus was installed there. (Norf. Antiq. Mis. i. 361.)

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try, was in mediæval times shut off by a wall; but there was communication between the present vestry, and what I believe to have been the ancient vestry, by a passage now a cupboard. The present vestry I take to have been the Sacrist's Chamber with the Treasury over it, which we find referred to in the Sacrist's roll of 1504: "In reparatione facta in camera nostra infra scararium nostrum."

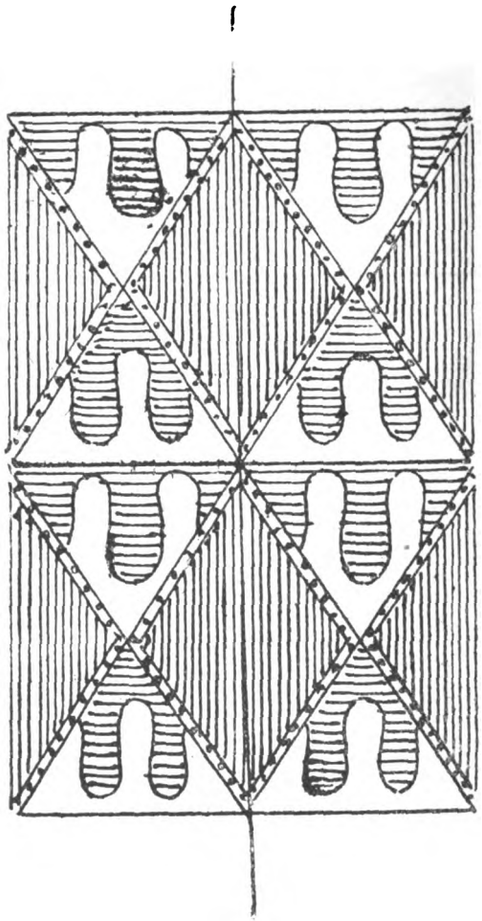
We know from many references in Elizabethan leases that the sextry yard and offices were just outside on Life's Green. The vault of the present vestry has a central boss, representing a bishop in a mitre. It is restored, but we may presume it bears some resemblance to its original. There is nothing, however, to indicate who the bishop is. We are told that at the dedication of the church after the fire in 1278, "An altar was hallowed at the door of the Sacrist's chamber, in honour of St. Peter and Paul and All Saints." As this was the Sacrist's altar, the figure on the boss in his camera probably represents St. Peter. Blomefield has a description of a wall-painting representing St. Peter in the south transept. I will speak of the north transept chapel presently.



DECORATION (IN HERALDIC TINCTURES) ON DIAGONAL RIBS OF VAULT OF JESUS CHAPEL.
N.B.—Gules, as often in late decoration, is a madder red.

We come now to a pair of chapels projecting north and south from the procession path round the presbytery. That to the south is now used as the Bishop's Consistory Court,* the other has disappeared. I call them a pair of chapels, because the entrance arches are exactly alike, and they face each other directly. Of the chapel in the south aisle we know the dedication and the history. It is called the chapel of William Bauchun, who was granarius of the monastery; and it was dedicated to Our Lady and All Saints.* Bauchun died in 1330, and the accounts for the building are given in the previous year; but it must have been begun several years before, as in 1325 we have a reference to "vetus capella Ste. Marie." Of the building of the corresponding chapel in the north aisle we have no record in the Priory accounts. Probably therefore it was a gift from outside, perhaps from the Bishop. I thought once that as Blomefield calls it Berney's Chapel, and tells us that John de Berney was buried here, he might have been the donor. But in his will he asks the Prior's leave to be buried there by his wife Joan, and if leave is not given he directs his burial to be by his wife Sarah in St. Anne's Chapel at Bergh Apton, which he had built. If he had also built this chapel, I can't help thinking he would have said so.

Its dedication was, I have assumed, to St. Anne, for in 1331 we begin to have oblations from St. Anne's altar; and no other dedication was so likely, as the companion to a Lady chapel, at this period, when the dogma of the Immaculate Conception of the Virgin was being



DECORATION (IN HERALDIC TINCTURES) ON RIDGE RIBS OF VAULT OF JESUS CHAPEL.
N.B.—Gules, as often in late decoration, is a madder red.

pressed. We can, however, settle the matter by a reference to a sixteenth century lease. On April 17, 1546, the Dean and Chapter granted a lease to Alexander Chapman "of all that their Chamber within the precinct sometyme called the Sanctuary Men's Chamber, with other the edifyings and appurtenances of the same Chamber, which one Francis Attmere, priest, and after that Butblohe Parker, priest, lately had occupied and enjoyed, with the little garden thereto adjoining, and the garden called Our Lady's garden, and also two old chapels next adjoining to the said Chamber, whereof one

* Blomefield mentions a chapel due west of the Bauchun Chapel, "built in 1479 by John Heydon of Baconsthorpe, Esquire, for his own interment." It could not be entered from the aisle, but must have been approached through the door made by Bishop Wakering—marked W. on plan—into what Blomefield calls the "chapter house." The chamber here was undoubtedly used as a chapter house in the seventeenth century after the demolition of the mediæval one, east of the cloister; but I have at present no light on what it was originally. This Wakering doorway was removed by Dean Pellew, and the upper portion is in the Cathedral museum.

* The details of the history are collected in the Introduction to "The Sculptured Bosses in the Roof of the Bauchun Chapel of Our Lady of Pity," by M. R. James and W. T. Beasly (Nor. Archæol. Soc.); but it is not noticed that "Our Lady of Pity" is not the original dedication.

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was called St. Andrew's Chapel, and the other St. Anne's Chapel." The premises referred to in this lease lay on the north side of the Cathedral presbytery. If you stand outside and look at the church wall you will see that there are clear marks of two chapels, and two chapels only, those here called St. Anne and St. Andrew; St. Anne's being, as I believe, the one opposite the Bauchun chapel, and St. Andrew's a northward extension of the relic gallery which crosses the procession path. I am bound in honesty to add that in a lease of these same premises forty years later the two chapels are called St. Andrew and the Relic Chapel, as though St. Andrew was that opposite the Bauchun Chapel. However, this can be shown to be a mere slip of the pen. We know that St. Anne's Chapel was buried in; the other chapel was not on the ground floor, but carried on a vault, and so could not have been buried in. The "sanctuary men's chamber," spoken of in the lease, we must identify with the chapel east of the north transept. As we know this "chamber" to have been afterwards the residence of a Prebendary, we must assume it to have been a building of some size; and the north transept chapel still exhibits signs of having been divided into three storeys.

Let me now complete the story of the various Lady chapels. I have already referred to the rectangular thirteenth century chapel, east of the apse, built by Bishop Walter Calthorpe de Suffield on the site of the Founder's Chapel of St. Saviour, which earlier chapel we hope to rebuild as a memorial to the Norfolk soldiers who have fallen in the war. Bishop Walter's chapel fell down in 1563. He was a prelate of great sanctity and liberality; and after his death his tomb, before the high altar of his new chapel, became renowned as a place of pilgrimage, on account of the miracles wrought there. Indeed, the Lady chapel came to be called St. Walter's Chapel. I find in a will of 1383 that an archdeacon of Suffolk directs his body to be buried "in the chapel of St. Walter." I suspect that it was this association of the saintly bishop with this eastern chapel that was a prime cause of the other Lady chapel being built by Bauchun in 1330. The cult of the bishop lasted till about the end of the fourteenth century. As his fame declined, an attempt was made to revive the ancient and proper use of his Lady chapel, by placing there a new image of the Blessed Virgin (1390), and at the same time the Bauchun Chapel became the chapel of "Our Lady of Pity," which was not its original dedication. It was specially used by women to pray for a safe delivery. If you compare the brackets in the Bauchun Chapel with those in the Jesus Chapel, you will see that they belong to the same period, the end of the fourteenth century, when this change was made; half a century later the walls were raised and the stone vault was added, it is believed by William Seckington, an advocate of the Bishop's Consistory Court, which then as now met in the chapel. His shield of arms appears on two corbels, and what may be his portrait faces the carving of Our Lady of Pity on the east wall. There is yet one more change to be chronicled. The oblations in the Bauchun Chapel fell steadily till in 1510 they are only 1*d*., but in that year there is an entry of 8*s*. 10½*d*. received from the "compassion" in the nave. This was a new chapel of Our Lady of Pity under the pulpitum, now the organ screen. I have no clue at all to the reason for the change. There was one other altar of the Blessed Virgin in the church. In 1386 a new image was erected at the precentor's altar, which is said to have been at the right hand of the pulpitum. It is sometimes called "the great image of Blessed Mary (1394)," but generally "great Mary." In 1278, at the rededication after the fire, an altar had been dedicated here to the Blessed Virgin, St. John the Baptist, St. Giles the Abbot, and all holy virgins, and it is interesting to find that in one year (1405) the oblations from St. Mary at the precentor's altar are entered as "from Great Mary and St. John." I will here hazard the guess that the adjoining portion of the south aisle, between the third and fourth piers, the vault of which shows remains of painting, was a chapel of St. John the Baptist, as a chapel so called in the south aisle was assigned in 1564 to the parishioners of St. Mary-in-the-Marsh, on the destruction of that church (Blomefield, iv. 52).

We come now to St. William's Chapel. The site of this is fixed by two entries in the chronicle of our Monk Bartholomew Cotton (died 1298). He tells us that Bishop Herbert finished the church of Norwich as far as the altar of the Holy Cross, which is now called the altar of St. William, and we also learn from him that when in 1278 the restored church was dedicated by Bishop Middleton after the fire, "there was dedicated the altar of St. Saviour and All Saints, where St. William lies." The reference in both cases is to the altar in front of the rood screen. We have a similar reference later in the will of Bishop Browne, who died in 1445. He orders his burial to be "In superiore parte navis ecclesie Cathedralis Norwicensis prope medium altaris Sti Willhelmi."*

In 1304 Robert, the clockmaker, receives 13*s*. 4*d*. for a shrine of St. William, and the next year it is gilded and painted. This sends up the oblations, which in 1304 were only 9*d*., to 11*s*., 21*s*., 12*s*., in consecutive years, but presently they are grouped with others again, and when next they are particularised in 1341-43 they had fallen to 6¾*d*. and 4*d*. In 1376 the Guild of St. William was founded, and this gives him a new lease of popularity. In 1386 (the first year after 1376 for which we have accounts), the oblations are £19 13*s*. 5½*d*., which is their high-water mark. Then they slowly decline. The last entry we have is 2*s*. 11*d*., in 1521.

There were other small chapels in the Cathedral fenced off by screens, but of these it is more convenient to speak as altars, because we do not know in every case whether the saint had a chapel or merely an altar. There were also the chapels in which certain of the Bishops made their tombs. Bishop Wakering was buried in St. George's Chapel, Bishop Goldwell in that of St. James the Greater and Less. Of Bishop Nix's Chapel I do not know the dedication. It contains niches for three saints.

(To be concluded.)

HOUSE BUILDING: PAST AND PRESENT.—III.†

By M. H. BAILLIE SCOTT.

(Concluded from last week.)

As a starting-point in designing the modern house, we have all the work of the past to guide our choice, which, broadly, will lie between two types of what may be called the "craftsman" or romantic house, and the "scholar," or classic house; the house built on Gothic principles and the house built on Renaissance principles. The main difference between the two is that the Gothic work makes the constructive features of the house itself the elements of its appeal: it is a piece of building art to which any other decorative arts that may be introduced are subordinate. The beams of the ceilings are visible and the framing of partitions. We can read everywhere the story of the structure which gains a kind of individuality and reality. But in the Renaissance building, beauty is only skin deep; structure is everywhere concealed by superficial casings, walls and ceilings are coated with plaster, and all the structural features of the house hidden, while the interests of the rooms are centred on fabrics, pictures and ornaments. The main interest is transferred from the house itself to its accessories, and the house tends to become a convenient sort of box for sheltering people and their belongings—a box which may have its external adornments and trimmings, but which no longer relies on the realities of structure for its significance as an essay in the

* See a paper by W. H. St. John Hope in Proc. of Soc. of Antiquaries, February 23, 1899.

† Abstract of the third of three lectures delivered before the Royal Society of Arts, and printed in extenso, with illustrations, from houses designed by the author, in the Society's "Journal."

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builder's art. The main quality of the craftsman building is that it is elastic and accommodating. Windows and doors can be placed where they are wanted and the whole effect is natural, unaffected and homely. It kindles the imagination, and is full of the mysterious charm of romance. The classic house represents a statement complete and finite. It is a conscious piece of art which has been definitely arranged from the outside—not the natural outcome of internal requirements. It seems to challenge our regard and demand our homage. There is no escape from the insistence of its façades. But the craftsman house is more subtle in its appeal. It is casual; it rambles and dissembles; and only when we have entered the wide, low doorway, and become steeped in the deep and silent influences which breathe from its walls, do we begin to realise the potency of its charm. I must confess to a preference for this earlier building art; but it must be admitted that the classic house, on grounds of expediency, has much to recommend it in these days. Relying as it does more on design than on craftsmanship, it does not suffer much from machine-made mouldings and mechanical workmanship. Its parts might be standardised and made in a factory. Divided as it is into rectangular plastered boxes, it is easier to build under modern conditions, and it seems to express very well the kind of occupant whose ideals consist in a strict observance of the routine of life. If you can appreciate the mystery and magic of the earlier houses, and if you can feel the unfathomable depth and the warmth of their appeal, I doubt whether you will be quite satisfied with the Renaissance house, although its dignity and reticence is something to be thankful for. It is scholarly correct, and in good taste, but somewhat trite and shallow.

These and many other ancient types of houses may be studied and inwardly digested, but not imitated. And then again we may fling away the past altogether, and devise the modern house as an expression of modern needs without any reference to the work of our fathers and other people's fathers. This scheme seems to open out a fascinating prospect. But building is such an old art that it is obviously foolish to cast aside all the garnered experience of the past. Let us hold fast all that has been well done, whatever bad work we may reject. Instead of cleaning the slate let us leave on it all the sums that have been worked out right. Originality in design and novelty of form are not essential. The novelty of to-day is the monstrosity of to-morrow. A review of the houses of the past will show that it is not the cleverness of their designs nor the novelty and originality of their work which delights us. These qualities are more apt to constitute a weakness. Soundness and common-sense are more valuable qualities in building than cleverness. When all is said, it seems to me the best kind of house is that which possesses that depth and earnestness of appeal which belonged to the old houses of the craftsman period, and in which the mystery and magic of romance seemed the outcome of work done in simple, honest and straightforward ways. One of the most depressing qualities of modern building is the deadly soul-destroying stupidity of it all—the waste of human faculty in trying to achieve mechanical regularity, as if man with all his powers could find nothing better to emulate than the work of a machine. And so one of the most cheering features in the old craftsman work is the intelligence it displays in this respect.

I know there are those who may appreciate more the work of the scholar period with its symmetrical façades, its superficial refinements, and its coldly correct and severe apartments. Or, again, there are others who regard the whole application of artistic ideals to the house as something of a nuisance, who would have the artist keep in his proper field as a painter of pictures, and who look upon the house as a purely utilitarian affair, a kind of glorified pig's trough where meals may be conveniently eaten.

Such varied ideals must be the outcome of various minds, and I can only speak of my own dream of the house. Mere conveniences, much as I appreciate them, would not fulfil my demands, and the strict and bounded formality of scholarly architecture leaves me cold and dissatisfied. Give me rather the house of romance. I would have as its main apartment a hall or houseplace of ample floor space, broad and low. Great oak beams should span it, and great oak boards compose its floor. At one end, a deep and wide angle with one of those open chimneys in which one can see the blue smoke from the wood fire swirling upwards would please me better than any narrow modern grate with its petty art tiles and mantel. On the wide hearth the proper appointments of the fireside would twinkle and gleam in the firelight. And on the walls I would have no machine-made picture rails, no friezes or any paperhanger's art, only innocent spaces of white, varied perhaps with a tapestry hanging on such solid timbers as the structure of the house requires. There would be a few rugs on the oak floor, and the few furnishings would be of the easy home-made kind which used to be made by the old English craftsman. The house should, indeed, breathe out those happy influences which go with this home-made kind of work, without a hint of the glib and shallow dexterities of the factory or the products of the modern trade art. And, above all, I would have nothing too fine or dainty for its uses, and should refuse to be intimidated by the silent tyranny of artistic furnishings. This hall must be of such a homely kind that my dog may enter there without rebuke. It must not merely look like a piece of a cabinet-maker's shop window nor represent a correct reproduction of any period. Nor must it appear as a museum, with its walls and floor space crowded with a jackdaw hoard of art treasures. There should be no more furniture there than the uses of the room demand, and the quality I should most appreciate would be restfulness and quiet simplicity.

Having secured this central apartment, which would almost constitute the house, the further development of the plan would depend on the resources at my disposal. Opening from the wide spaces of the hall would be a little "growlery" or study, like a little chapel attached to the nave of an old church, and this might well be lined with books. Its smallness would give it a distinctly intimate quality, and would never appear cramped owing to its immediate connection with the roomy hall. Opening off the hall again would be the dining-room, and this I should like to have panelled in oak. Beyond the dining-room, the serving pantry would communicate with it by a door which would disappear as a door, and become mere panelling when shut. The kitchen premises, compactly and serviceably arranged, should as far as possible be lined with white tiles, not of the usual harsh, glaring, modern quality, but with the friendly twinkle of the Dutch tiles. The woodwork here would be painted green, and the general effect would have the fresh cleanly aspect of the Dutch kitchen. I should not consider it essential to make a great feature of the staircase, and in small houses there is much to be said for the old cottage type of stairs which open from the hall by a door which appears to be a cupboard. The bedrooms would be broad and low in their proportions, with long low casement windows; and, arranging the bath-room close to a dressing-room, it would be well to have an extra bath in the latter.

The conception of the house, considered from the artistic point of view, will in no way militate against more practical considerations. The absence of unnecessary furnishings will make it easy to clean, and the saving of all unnecessary labour will be to a great extent the reward of a proper regard to an ideal of simplicity. I do not propose to have a white marble threshold at the entrance with a spray of water specially laid on to clean it, as Mr. Arnold Bennett has ingeniously proposed. My threshold will be of oak. Nor do I

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intend to round off all the corners of the rooms. But I should have, as far as possible, fixed basins in the bedrooms with hot and cold water laid on, and, above all, if funds would permit, a proper installation of a vacuum cleaning plant, so that the usual method of chasing dust from place to place in the house should be replaced by a scheme for drawing it down to a receptacle in the basement. In the house I am considering it will hardly be possible to rely entirely on the fires to warm it completely, especially in the case of the hall or houseplace, where the great open hearth and chimney is deliberately chosen in favour of the modern grate. I do not, however, wish you to hastily dismiss the old open fire as entirely unscientific. The great mass of brickwork in which these old fireplaces were formed, centrally situated in the house, actually forms a storehouse of heat which is retained by the brickwork—for brick has the quality of absorbing and holding and gradually radiating heat, so that in baking bread in an old-fashioned brick oven, for instance, the fire is extinguished before the oven is used. And this storage of central heat in the house provides a continual supply of warmth to the adjoining rooms. If, in addition to this, a modern system of central heating is introduced, in cold weather it will be possible to use every part of the rooms, and the fire itself will mainly attract us for its beauty. To remove the open fire altogether, as in Continental houses, is from a scientific point of view quite reasonable. But I doubt whether there is anyone who is not notably warmed in spirit as well as in body by the sight of a fire on a cheerless day. A room without a fire is like a landscape without the sun. Even when cramped in the narrow confines of a modern grate, the fire asserts its charm. But when it has its ancient setting of the great open hearth, when it is composed of logs and snapping twigs, and the light of it gleams on copper and brass, it creates for us a picture we cannot well do without. It seems to be the warm heart of the house and the symbol of its hospitalities, and few scents are more welcome than the aromatic incense of the burning wood.

In this rough sketch of an ideal house, it will be noted I have been mainly concerned with the interior, partly because it seems to me most important, and also because I believe, if the general proportions of the rooms are good, the proportions of the exterior will be no less satisfactory. Houses, I think, should be designed from within outwards. And then I always prefer the kind of house which dissembles a little in its outward aspect. An imposing façade is somewhat of a bore. It seems to stare one out of countenance. For a country house especially, the best that can be said for the exterior is that it is in harmony with the world of Nature, and this harmony can only be achieved by proportion and workmanship of the right kind, and by that kind of design, which can hardly be called design at all, which is the resultant of internal requirements. A somewhat casual, rambling and unconscious air, as of a building which has grown out of the ground and is the outcome of local conditions, seems better than some imported preconception in the latest architectural fashion of the day. And in the general tone and colouring of the building, in most cases, the natural principle of protective tints may be wisely adopted, so that the house seems almost to become a piece of Nature.

The kind of garden which should surround the house I can only briefly refer to here. I would have no vague and shapeless shrubberies or curly paths and sinuous carriage-drive. The garden would be an outdoor extension of the house, and consist of green-walled apartments linked together to form vista lines. The paths should, as far as possible, be paved with stone or brick, and these in many cases set in mown grass, or bordered with spreading flowers which would invade their boundaries. There should be no hard clipped grass edges: the same fatal spirit of mechanical regularity which has been banished from the house should find no place in the garden. Flowers should be set in masses and rifts of colour, and not dotted at regular intervals in the borders. The horrid trinity of calceolaria, geranium, and lobelia should edge no paths of mine. It should be a garden somewhat formal and yet not without a casual air, with massed profusion of flowers relieved against dark backgrounds—a garden of sunshine and shade, with open spaces of mown grass and many roses, carnations, lilies, and other old-fashioned flowers. It should not reveal at once all its beauties. And, if possible, there should be added the pleasant chatter of running water, as well as the stillness of deep pools.

The soul of the house is an elusive thing. It can hardly be described in words, and only faintly indicated in pictures or photographs. Only in the actual buildings themselves do we experience the impact of their personalities. And how varied these are! In the old craftsman houses, especially when they are unoccupied and free from modern trappings, one is aware of all kinds of deep influences and unspoken messages breathed forth from the walls. One seems to be brought into touch with those long-departed builders, and to realise here in their work the depth and earnestness of their endeavour. Something of their inmost life has been projected through the ages, and has taken definite shape in the work of their hands; and, as we pass from room to room, we find ourselves soothed and charmed and enveloped in an atmosphere of peace. The whole building seems to hold the secret of some exquisite enchantment, and active occupation for the mind does not seem necessary there, for the building itself is a continual feast. In the average modern house, with its harsh repellent personality, we must always be doing something to escape from its influence. We can only bear to live in it by continually looking out of the window at the "view." It is impossible to escape from the inherent meanness and sordidness of its nature, disguise it as we will with elaborate furnishings, and, when empty of them, it stands revealed in its true character: it is desolate indeed.

Building is not recognised at all as an art in the modern world, where the popular conception of art is of something which is framed and glazed and put in a public gallery; and until we begin to learn that art is something more than that, we cannot hope to have any good building again, or anything better than what Professor Lethaby has aptly called "architect's architecture" for the few, and what I may call "builder's building" for the many.

THE CONCRETE INSTITUTE.

AT the Ordinary General Meeting on November 17, Mr. Henry Adams, M.Inst.C.E., M.I.Mech.E., F.S.I., F.R.San.I., &c., delivered his Presidential Address, from which we abstract the following passages:—

The labours of the Council of the Concrete Institute in the matter of the Reinforced Concrete Regulations, extending over a period of six years, have at last borne full fruition. In the draft of the Regulations, which was submitted to the Council for final approval before they became law, the whole of the Council's recommendations were found to have been adopted, with very slight modifications here and there. Very prolonged attention and a considerable amount of thought and anxiety have been devoted to the subject, and the result is one of which the Institute may justly feel proud. Reinforced concrete construction carried out in accordance with these Regulations will be absolutely safe, and so far as can be judged at present, its effective life will only be measurable by centuries.

The completion of these Regulations has been, for us, the great event of the year, and our heartiest thanks are due to the London County Council. No previous Building Regulations have been compiled with so much care or with so honest an endeavour to meet the reasonable views of all parties.

* * * *

We have not yet settled the relative position of the

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architect and engineer in steel-framed and reinforced concrete buildings. Mr. Cocking says: "Another aspect which should not be lost sight of is the status of the engineer in the future. The 1909 Amendment is essentially an engineers' Act, and the reinforced concrete regulations will be more so; therefore, it seems within the possibilities of the near future that, provided the engineer takes advantage of his opportunities, he might assume the more important position, and in such case the architect would confine his attention solely to the architectural treatment—unless, of course, the architect more fully appreciates the rapid change in modern building conditions and construction." Mr. Brown says that an architect is necessarily a structural engineer, and I agree that if an architect is to have the responsibility for the stability of his building, he ought to that extent to be a structural engineer, but what is the fact in the majority of cases? If Sir Christopher Wren had been a structural engineer we should have seen various modifications in the structure of St. Paul's Cathedral.

Mr. Brown is very emphatic when he says: "It is the architect, and the architect alone, who should determine the positions of all main girders, stanchions, and supports." If the architect is wise, he will welcome any suggestions the designer of the steelwork may be willing to make. It is very nice to have a clear area without stanchions, but this is a luxury that has to be paid for heavily; a stanchion in the middle practically reduces the stress on the girder to one-fourth.

An editorial in "Concrete and Constructional Engineering" says: "Generally speaking, it is the architect who will settle the construction to be employed, leaving out for the moment those schemes which are executed by the contractor direct for the client, and it is necessary that this fact should be realised at the outset, because it has an important bearing on the subject. Now, if architects as a body could be convinced that an actual saving is effected by the use of reinforced concrete, there is no doubt that structural steelwork would at once take second place in all important work, but there are difficulties to be overcome which must not be overlooked. In the first instance, architects are familiar with steelwork, and can generally calculate the required strength of ordinary members with the aid of available tables, and they have a certain feeling of confidence in dealing with a material which they understand. With reinforced concrete the circumstances are different, there being extremely few architects who thoroughly understand the theoretical side of this material, and there are no tables or 'rule of thumb' methods for making even approximate calculations, and as they cannot be expected to take up the subject in the same manner as the engineer, and become proficient in the design, they are apt to avoid the material as much as possible. Secondly, the architect is not limited by any patent system if he decides to use steelwork. But with reinforced concrete he is limited to a certain extent by systems, by specialists who wish to take off their own quantities, by licensed contractors, and by other questions which are not helpful. If he selects a particular firm of specialists he eliminates competition, which he must have for the satisfaction of his client, and the only alternative is to employ a consulting engineer, who will prepare a scheme upon which to obtain estimates. This method is by far the most satisfactory, but it is not always possible to persuade the client to pay the necessary fees to the engineer, and the architect cannot afford to pay them himself. We quite agree with Mr. Watson's remarks as to the great waste which occurs when several firms are asked to prepare calculations and schemes for the same building, when only one set of drawings will be used. If it were only possible to accomplish, it would pay all the specialists to combine, in the case of competition schemes, and jointly employ one independent engineer to prepare a set of drawings upon which each firm could tender. The result would be lower prices and a proportionate increase in the use of reinforced concrete, which would eventually be beneficial to all the firms."

I have previously expressed the opinion that there should be more collaboration between the architect and the engineer, and our joint meetings will go far to remove any difficulties that may arise in practice. It is said in some quarters that there is too great a tendency for architects to look upon concrete specialists and constructional designers as merely better-class craftsmen, but as craftsmen to be entirely subordinate to the architect. I can only say that architects are among my best friends, and I cannot complain that they have shown any lack of consideration in any views I have put before them.

. . . .

In my previous address I called attention to the fireproof qualities of reinforced concrete construction, and during the past year these qualities have been exemplified on more than one occasion. According to a report in one of the trade papers, an intense fire at Messrs. Davis & Sons' tannery at Kingston, Ontario, demonstrated very clearly the eminently fire-resisting character of reinforced concrete construction. These works consisted of several so-called fireproof buildings adjoining a reinforced concrete building. It is a remarkable fact that whereas all the other buildings were completely destroyed, the reinforced concrete building remained uninjured, although it was close up to the buildings that were burnt down. A four-storey brick and steel building was completely destroyed, and of the brick engine-house nothing was left but a mass of ruins. There was a leach-house on the site, with reinforced concrete walls built around the interior structure, which consisted of steelwork within hollow tile floors; the reinforced concrete walls stood up, but the interior collapsed. A few days after the fire the owners had made good the slight injury to the reinforced concrete building and continued work in it.

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A fire in a six-storey warehouse of reinforced concrete at Youngstown, Ohio, is believed to have been caused by an explosion on the sixth floor, where two car-loads of matches were stored. For three hours these matches burned furiously, the temperature reached being 1,700°. In spite of this furious fire, a careful examination of the roof construction revealed practically no injury to this portion of the building. On the fifth floor the injury to the reinforced structure was but trifling, and in other parts of the building the structural injury was inappreciable, although fierce fires of highly inflammable materials had occurred in them. Immediately after the fire a test load of 300 lb. per square foot was placed over all the areas, and the maximum deflection of a beam was found to be only one-sixteenth of an inch. Although the value of the contents destroyed was £40,000, the injury to the building was made good at an expense of less than £500.

Further testimony as to the stability of reinforced concrete buildings under the action of fire comes from the accounts of the fire which destroyed a large portion of the plant of Mr. Thomas A. Edison, at West Orange, New Jersey, on December 9 last. The first account erroneously stated that the concrete buildings, supposedly fireproof, had been destroyed. These accounts were very inaccurate. The seven concrete buildings attacked still stand, while about them were the tangled and hopeless ruins of one frame and six brick buildings. The fire was a very fierce one, and five chief reasons are assigned for the extent of the disaster and the rapid progress of the fire. These are: The highly inflammable character of the contents of the buildings; (2) the inadequacy of the water supply; (3) the fact that the window openings were fitted with wooden sashes and plain glass; (4) lack of fire walls; (5) lack of automatic sprinklers. With the exception of the upper floors of certain sections the concrete buildings remained in good condition and the salvage was proportionally extensive. Columns spalled here and there, without, however, exposing the reinforcing rods, and occasionally, but not often, the beams also spalled.

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In general, the more destructive effect of the fire upon the columns than on the beams was noticeable. The effect of the fire on the columns extended generally to a depth of about 1½ inches. Except where the fire was very severe, the concrete did not come off and the rods were not exposed. Longitudinal cracks were found on many of the columns, the reinforcing of which consisted only of four vertical rods without horizontal ties or hooping. A considerable proportion of the damage to the columns is attributed to the streams of water which were directed upon them when heated, and it is the belief of the officials that very little damage would have been done had the water not been directed upon them after they had become very hot. Three specialists employed in the investigation have reported that 87½ per cent. of the concrete construction remained in first-class condition and the work of restoration was promptly put in hand. No better recommendation of reinforced concrete could be given than the evidence afforded by this fire.

. . . .

Owing to the shortage of German and Belgian supplies of Portland cement, a good deal of attention is being given to the manufacture of this material abroad, in places where limestone, shale, or clay and coal can be obtained of suitable quality and in sufficient quantities to make the manufacture likely to be successful and remunerative. The Queensland Cement and Lime Company has now arranged to establish a works at Darra, near Brisbane. The plant is designed to produce about 40,000 tons of cement per annum. The complete contract for the supply and erection of the plant, which will be of entirely British manufacture, has been placed with Messrs. Noyes Brothers, Sydney. Grinding mills of the combination ball and tube mill type, and a kiln 140 ft. long and 8 ft. in diameter, will be erected; and these, together with all the subsidiary plant, will be electrically driven, direct-coupled wherever possible. The motors are for 3-phase, 50 cycles, 440 volts, and will be supplied with power from generating plant in the works, which will be direct-coupled to vertical high-speed engines. The general lay-out of the plant has been made with the expectation that the works will soon be duplicated and even further increased.

Why is it (says the "Engineering Record") that in two concrete buildings apparently constructed under identical conditions, built by contractors of equal intelligence and integrity, from concrete composed of similar aggregates and the same brand of Portland cement, the floors in one will turn out hard, firm, and resistant to abrasion, while in the other ordinary usage will result in dusting? The fact that numerous dustless concrete floors have been laid seems to indicate that the trouble must lie in the selection, proportioning, mixing, placing, or finishing of the material. The procedure and proportions described below have given excellent results. For first-class work a rich mixture is desirable, say one in which the aggregate consists of granite, or other hard stone, screenings graded from ¼ in. down to the finest, and crushed stone of equal quality passing a ½-in. ring and retained on a screen having ¼ in. mesh. All trowelling and finishing of the floor surface should be completed within two and a half hours from the time the materials leave the mixer. This necessitates mixing the material to such consistency that the mortar has to be scraped from the wheelbarrows, and will hardly flatten out when dumped upon the floor wet enough so that it can be "struck off" with little difficulty when spread out with shovels. The floor usually is in a condition to be trowelled for the last time within an hour and a half or two hours after the finishing course has been mixed. When sufficiently hardened to prevent pitting, the floor should be sprinkled with water until 2 in. of sawdust can be thrown on the surface without injury. The sawdust should be thoroughly wetted and kept moist by sprinkling for a period of two weeks.

A mixture of 15 or 20 lb. iron dust with 100 lb. Portland cement added to twice that quantity of sand, applied as a top coat 1 in. thick to a concrete floor, is said to render it hard and durable.

What may be called the standard mixture for concrete in reinforced work is 1 part Portland cement, 2 parts sand, and 4 parts larger aggregate, by volume, commonly known as a 1:2:4 mixture. There is a very objectionable practice on the part of some people, who ought to know better, to call this a 1 to 6 mixture, with the result that a builder may have some ground for assuming that he complies with the requirements by using 1 part of cement to 6 parts of combined sand and larger aggregate, which would approximately be a 1:3:6 mixture, but there is no guarantee of the proportion unless the materials are mixed separately, 90 lb. of cement being taken as equal to 1 cubic foot.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE opening meeting of the session of the Edinburgh Architectural Association was held in the small hall, 5 Queen Street, on Friday, the 26th ult., the president, Mr. T. Forbes Maclennan, A.R.I.B.A., in the chair. Referring to the distress in the profession caused by the cessation of building work, Mr. Maclennan pointed out that if private enterprise in building was entirely stopped, as seemed to be the desire of the Government, the National Exchequer was bound to suffer. They all realised, however, that the one all-important thing for the nation was that the war must be fought out to a victorious conclusion. If we did not win, if German Kultur were to be imposed on us, we were better dead: but if we did go on to complete victory there was every reason to hope for a great advance in the development of their art in a more peaceful atmosphere than they had ever known.

Professor Charles Gourlay, B.Sc., A.R.I.B.A., of the Royal Technical College, Glasgow, delivered a lecture, illustrated by lantern slides, on "Santa Sophia, Constantinople." He referred to the interesting fact that this church, the greatest monument of the Byzantine style of architecture, was erected within the area comprised in the site of the ancient town of Byzantium, whence the style derived its name. He then showed illustrations of plans and interiors of Greek, Roman, Early Christian, and previously-erected Byzantine buildings to allow of a true appreciation of the great advance made by the magnificently-conceived plan of Santa Sophia, with its beautiful interior, upon those of any other building then in existence. Because of its size, the church was known as "The Great Church," and it was erected for the Emperor Justinian by the architects Anthemius of Tralles, and Isidorus of Miletus, between the years 532 and 537, when the Byzantine style was at its culmination; hence its composition and details were of the choicest design and execution.

A NEW EPOCH.*

(Concluded from last week.)

FAMILIARITY with the ever-changing conditions of warfare will be an essential part of education for the youth of both sexes. The weapon of the future will be a properly directed national intelligence—it will be mind against mind.

The destroying gas waves; the flying shell; the bursting shrapnel; the death-spitting missiles from Maxim and rifle; the mechanical vultures and mosquitoes of the air; the engined destroyers of the deep, the burrowing atoms of humanity, sapping their way to each other's vitals—all will be but as the flying electrons from the radium of the nation's brains. In the mountain of Pitchblend that is the British Empire we have untold stores of the radium of intelligence, but it must be extracted to be of use, and that cannot be done without the proper plant.

Set up the plant in every school and university, in every home and institution, in every church; preach familiarity with every weapon that may be used in our country's defence, so will you have peace and the calm to nurture those Christian virtues she holds up as her ideal.

* Address by Capt. R. Burns Dick, F.R.I.B.A., President of the Northern Architectural Association, Nov. 17.

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When our foes are beaten to earth and the sword is sheathed, we architects must be in the forefront of those who lay the foundations of this remodelled national structure. Let us be the first to formulate plans for its extension and alteration, such as will condemn all decayed and useless parts, preserving only the firmly based and soundly constructed core, in which are preserved the glorious traditions of a thousand years.

In this new national structure the ideal to aim at, it will be agreed, is to construct it and maintain it by the best intelligence available. It cannot be contended that this is the basis on which is reared our existing national and local government.

Suppose it is contended that it is fairly representative of the average intelligence of the people, that is not enough. However equitable it may seem to give an equal vote to every man (and woman if you will), an equal right to say how we must proceed, such a method is unsound and illogical, viewed from the immense gulf that separates the intelligence and character of one individual from those of another. The noblest and best must rule in the new state, not the average. A beautiful theory, but how is it to be applied? It is a difficult problem, I admit. Perhaps you will say it is impossible. Then I would remind you that, as one of our French friends says in speaking of war operations, "Il n'y a que l'impossible qui réussisse." Who amongst us in his small way but has felt the thrill of exaltation at having achieved the apparently impossible? It may take generations to accomplish it, and it will require the application and genius of many brains to solve it, but the sooner it is commenced the sooner will we see the fruition of our efforts. The flood tide in the affairs of this nation is approaching which, if seized, will bear us on to fortune.

Let me compress this nebulous idea into some semblance of form, feeble though of necessity it must be, lest I be accused of empty phrasing. Let me, as an example, take our local government, and suggest how the best intelligence of our city might be applied: to begin with, there would be no room in my new Council for the man whose only qualifications are leisure, ambition, a ready tongue, a fat purse, or personal interest to serve.

I know that we have, and in almost any system might have, men of wide exerience and intelligence and lofty motives on local Councils. Indeed, I think we are more fortunate in this respect than in many districts. But the system is too haphazard; there is a lack of balance in the character and experience and order of intelligence forming the combined wisdom of our rulers. The wisdom is representative of the Council's members, not of the highest intelligence of the citizens.

Say there are forty members required. If you take at random forty good average citizens, you have a Council equal to most elected on the present system. Each will express his own views, or at best what he conceives to be those of the class from which he is selected, not the studied views of the best thinkers of that class upon city affairs. A new way of representing what I hope will be in the future the co-ordinated intelligence of the community on the Council must be found, and to clear the ground for a reconstructed system I would wipe out ward representation and the voluntary representative. What would I substitute and how? Well, the necessary machinery for my new system, with a little development, is already in existence. Instead of making use of the ward divisions, divide the population into sections, each representative of one of the various interests which form the life of the city. These sections or "interests" are nearly all defined and more or less organised in their respective associations or unions. How many branches of activity would thus be represented would depend upon the size and character of the community concerned; for instance, the shipping interest might be very large in one place and non-existent in another. Having settled on the number of "sections" in any district, each qualified elector would by right be entitled to become a member of that which he considered most nearly represented his business or "interest." Each section or "interest" might supply a representative to the Council, whose duty would be to advance not his own personal views on vital questions affecting the city's welfare, but the studied view of his "section" arrived at through its committees and Council. These representatives might be paid permanent officials of their societies, presidents or members specially selected for their peculiar fitness acting for longer or shorter periods as the exigencies of the city work required. The size of the Council could thus be reduced, for though it might be considered that one "interest," being so large compared with another, should have a larger say in local affairs, this could be done by giving increased voting power to the representative of the greater.

The local authority would then be a collective organisation at its best, composed of representatives of all branches of local activity—military, educational, legal, financial, commercial, labour, medical, architecture, and building, engineering, social, religious, &c.—all giving the result of co-ordinated effort in their respective spheres to the furtherance of communal interest and advancement. There is no individual citizen that could not be included in at least one of, say, fifteen to twenty such "interests."

It would be the duty of each of these societies or "interests" to form what I might call a "Foresight Committee," devoted to the study of the changing conditions affecting their special spheres of activity and their possible influence on the affairs of the community generally—to anticipate events and formulate proposals to meet them, and to confer with similar committees in other sections, finally voicing the result of their deliberations through their representative.

All this would of course involve a decided change in the attitude of the individual towards public affairs; but unless this does take place no improvement is possible.

The lethargy and indifference of the average citizen is indisputable, but it is largely due to lack of any organised method whereby value can be given to his active interest, and I believe that, apart from the urgent necessity of greater interest in public work, our best men, under a system where they are assured of being able to exert their influence, would find a keen zest in using their knowledge and experience for the general weal.

These "sections" would no doubt require considerable reorganisation to adapt them to the new conditions. Our Society, for instance, while the purely professional work could proceed more or less as at present, would require to extend its activities and members made to realise the obligations of their citizenship. Matters of public concern generally would have to come within their purview. There is no doubt that such an extension of activity would re-act very favourably on the professional side of the Association, quickening the interest in all directions.

What a field for the imagination of our "Foresight Committee" would open up; what opportunities for the application of this gift in the reconstruction of our cities! I can hear some city father saying, "We don't want the dreamer and the visionary on our Councils; we want the practical man." My answer to that is that, in my opinion, the one man on committees (Building Committees, at any rate) who is a real drawback to the satisfactory prosecution of any work is the so-called "practical man." He is usually a man of very limited, if practical, knowledge; unimaginative and of very narrow outlook, fearful of losing caste amongst his confrères by admitting any inferiority of knowledge, and whose influence, if allowed play, is more often than not reflected in inferior, uneconomical, and inefficient work, barely sufficient for the needs of the moment, and showing no intelligent anticipation of the needs of the future. We have plenty and to spare of these men; we want the man of imagination to give some idea of what may be demanded in the future from the work of the practical man of to-day.

It might be possible to extend some such system as I have sketched so roughly to national government. Nearly all the societies and unions throughout the country are affiliated to or together form national or central societies which might, by their respective representatives, form a much reduced and more efficient parliament.

But whatever system the genius of the people may devise for the utilisation of its best brains, we must not wait till the change is accomplished. We must commence to think now, so that when the present crisis is over such action can be commenced as will add its quota in bringing it about.

Pending the arrival of that more enlightened time, we, like all other already organised societies, might start by forming our "Foresight Committee," and in season and out use every endeavour to enforce our right to being heard in the local Councils on matters where our special training and experience must of necessity be of value to the community. We must no longer be satisfied with the laying of our communications on the table, and our view treated with suspicion as emanating from an interested source. We must learn to command respect by showing that our actions are dictated by a desire to further the general good and not to pander to selfish interests.

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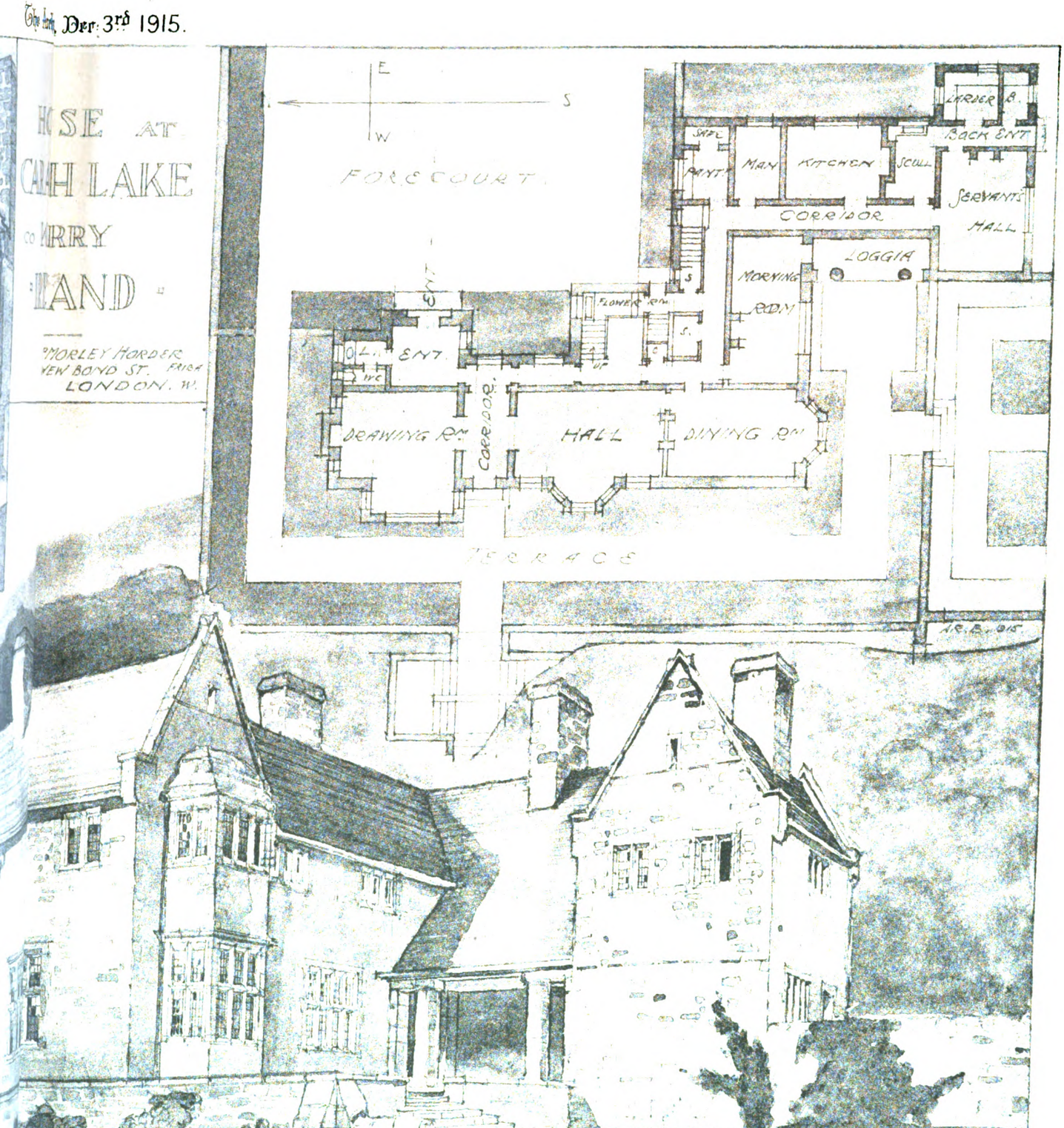
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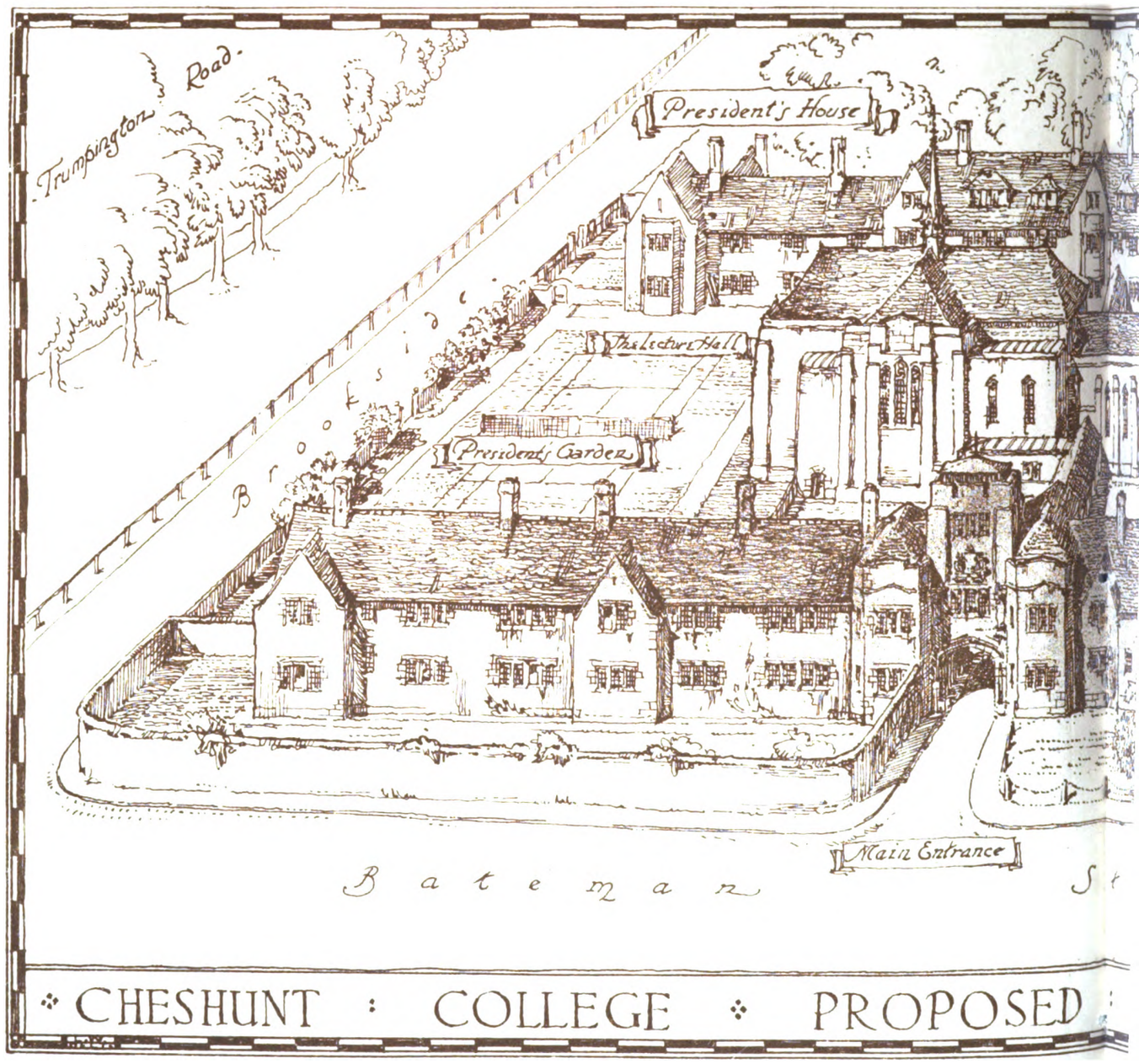
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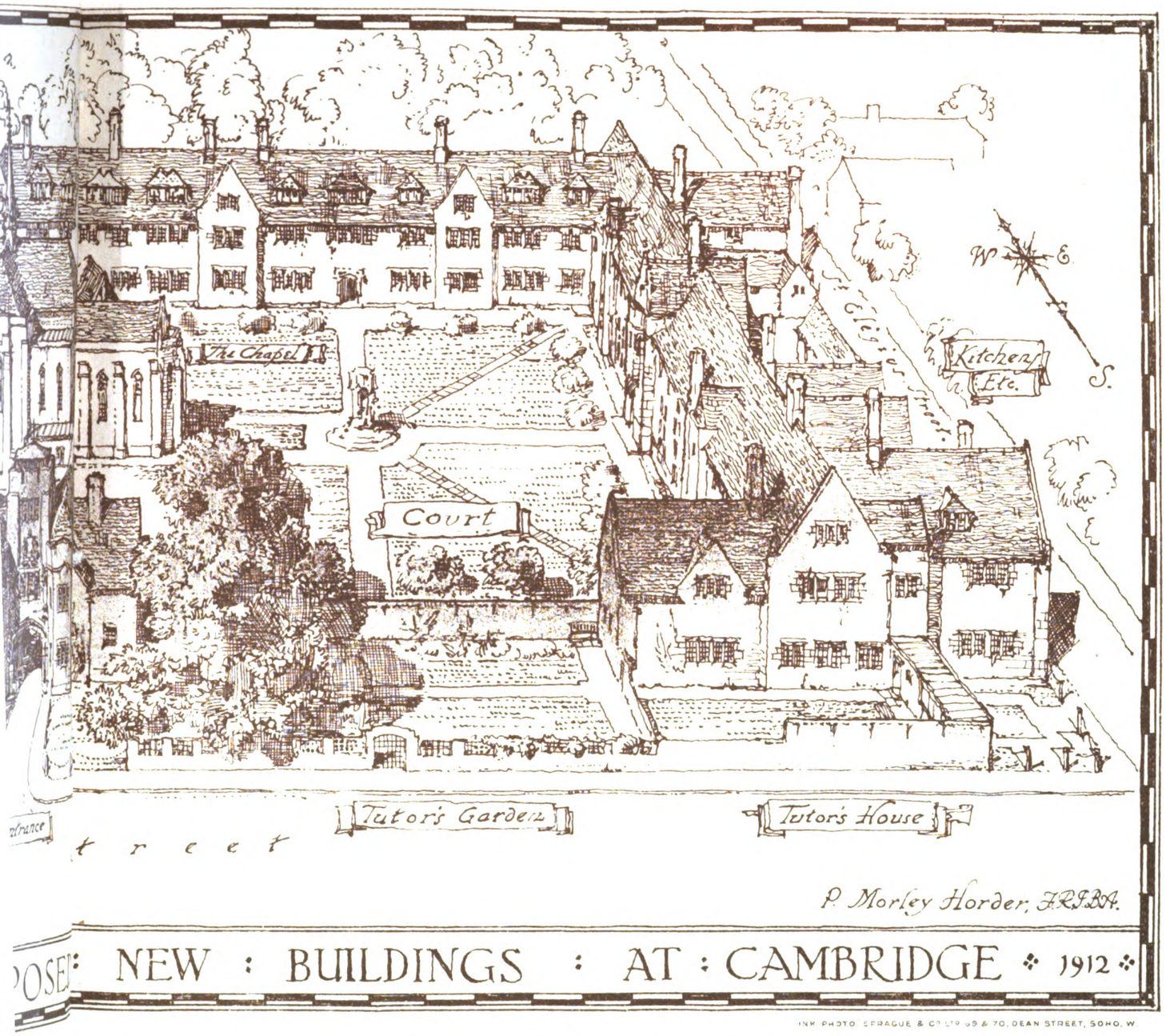
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The Architect Dec. 3rd 1915.



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Mr. JOHN HUDSON, F.R.I.B.A., Architect.

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In the time to come when the national life is permeated with the spirit of patriotism—the real patriotism of service to country—and a determination to put down with force if necessary any signs of aggression or despotism on the part of other nations, such problems as we are now called upon to face will look after themselves, for then they will be constantly and, as a matter of course, under consideration as an essential to the nation's position in the world.

But, in the meantime, the first and greatest problem that we must take up is how to shape our future plans to meet the danger that in a few generations will again confront any nation unprepared to defend itself against the new forces that will be employed by the enemy bent on conquest. Our "Foresight Committee" might well commence by studying the effects of the military offensive against cities that is just commencing to develop. This opens up a very large field for thought and ingenuity. Building construction must be considerably modified. The planning and general form of public buildings will undergo an appreciable change, and indeed the whole design and appearance of cities will alter not only in the normal way due to the advance in scientific and industrial methods, but directly to the growing power and destructiveness of outside attack, chiefly from overhead.

I can see the gradual increase in the proportion of open spaces; the general introduction of underground or double-decked roadways, with their solution of traffic problems combined with safety for the population; the general adoption of covered and arcaded footways on the lines of the Ritz Hotel, Piccadilly, having easily actuated steel shutters; the general return to shuttered windows of special design, and the entire absence of inflammable material where exposed to incendiary attack; tiled and slated sloping roofs entirely abandoned in favour of very strong flat roofs specially adapted for anti-aircraft appliances, and in the case of large or continuous blocks of buildings, without parapets and specially prepared for the landing and housing of Avions. I can imagine the national treasure houses being remodelled; picture galleries with suspended wall linings on which the pictures are fixed, and which could be swiftly dropped to their safety vaults below: museums with their cases of treasure, their statuary, and so forth arranged on continuous lift platforms similarly capable of being lowered to a place of safety by the pressing of a button; schools and similar public buildings so modified as not only to show the large part that national service in its wider sense plays in education, but also to make them immediately available for the accommodation of the citizen in arms at the signal of alarm; manufactories, where the worker on mobilisation orders becomes a soldier with his allotted place, so arranged as to become his quarters in war until required elsewhere; the creation of new types of buildings and athletic areas for the systematic training of the citizen soldier, and the education of the woman in her important duties in time of war. I can also imagine a network of subways, linking up important centres, and the permanently constructed and well-equipped trenches protecting the great industrial centres; great electric generating stations entirely underground, supplying the lighting and motive force for industrial, domestic, recreative, and war requirements; great Government laboratories for scientific and engineering research; and so on and so on. Each thinker, according to his knowledge and imaginative faculties, can make a mental picture of the aspect of future centres of life—all probably very wide of the actuality, but none more widely divergent than will be the change from the present state of affairs.

A "Foresight Committee's" duty should be to be, if anything, in advance of the times, in order that our progress shall march with the ever-changing conditions and requirements of the life of the new epoch.

Now, gentlemen, I must cease flicking the surface of this vast problem and leave you to go deeper if you will. I cannot expect you all to agree with my theme; I should even be prepared to hear the opinion that I had abused my position in voicing such views before a professional society. Yet I make no apology for so doing, for at such a time as this I feel perfectly justified in attempting on any available occasion to influence others to an earnest consideration of what I feel to be a vital matter to the nation first and to us as architects afterwards. If I arouse active opposition to some of my beliefs I care not so long as I succeed in stimulating an interest that may bear fruit in action when the fast-approaching time arrives. Until then let every ounce of our combined weight be hurled against our foe. In every way possible let all of us, old and young, for remember we are all now belligerents, emulate the courage and patriotism of those who are bearing the heat of the battle. Of our members and those who have been connected with us no less than sixty are with the Forces; many have been wounded, and, alas! we have to record the supreme sacrifice to King and country of four great souls whose memory will live on and add their lustre to our annals—George E. Hunter, A. E. Lowes, R. Mundle, and F. Lawson are gone from amongst us, and yet are they not to be envied, for

"How can man die better than facing fearful odds
For the ashes of his fathers and the temples of his gods?"

ARCHÆOLOGICAL INVESTIGATIONS IN MALTA.

EXCAVATIONS have been carried out by Dr. Ashby on behalf of the British Association in the ruins at Xrobb il Ghargin, who presented the following report:—

The ruins of Xrobb il Ghargin are as beautifully situated as any in Malta. The building which they represent was undoubtedly a temple or sacred edifice of the eneolithic period, and its site is an exceptional one, on the edge of the cliffs near the extreme S.E. point of the island. To the N.E. runs a line of exceptionally white cliffs, which terminate in the treacherous reef of the Munshiar (saw); to the S. is a much smaller point of softer and yellower rock running eastward, in the upper strata (the harder white strata begin to dip), and followed to the S.E. by a flatter bit of coast, guarded by a disused redoubt and tower. Then the deep indentations begin again, and continue until Delimara Point, with its lighthouse, is reached. In the bay between the Munshiar and the redoubt, about 150 feet above the sea, is the building which forms the subject of the present paper. All the rock of this part of the island is soft, and the indentations are continually becoming deeper, while the cliffs are much undercut. A considerable portion of the edifice has thus fallen into the sea, and the collapse of the rest may not be very far distant, as it is deeply undermined. The existence of the ruins was discovered by Mr. Carmelo Rizzo, P.A.A., who noticed the presence of a considerable depth of red soil upon the light-yellow rock.

Excavations were undertaken in December 1914 by Captain Laferla, of the King's Own Malta Militia, who uncovered the most important portion of the building. The plan was not, however, completed owing to lack of time, and supplementary work proved necessary. This extended over ten days in May 1915 under my supervision.

The remains of the structure need, as they stand, a comparatively brief description. We have, it seems, before us a sacred building of the eneolithic period—contemporary, that is, with Hagiar Kim, Mnaidra, the Gigantia, and the other megalithic edifices of the Maltese islands. Owing to its situation it does not altogether conform to the normal plan, as far as we can judge from the existing remains; though the fact that much of it has fallen into the sea must always be taken into account.

We seem, then, to have before us a central portion, consisting of (1) a semicircular chamber with a torba floor, with a shrine facing S.E. at its N.W. extremity; (2) a passage paved with large slabs of stone, which are on the level of the top of the low niche of the shrine, and are indirectly reached from the chamber A by a flight of steps leading into the chamber D on the S.W. side of this passage; (3) a chamber at the N.W. end of this passage; (4) another chamber beyond D again. Mr. R. V. Galea has noticed that in this building only of the megalithic monuments of Malta the main chambers are semicircular and not elliptical. On the N.E. side we have only the beginnings of walls, from which we cannot do more than infer the existence of other chambers here. But from the examination of the rest, it seems almost as if we might recognise in the central portion an arrangement identical with that which is familiar to us in the larger Maltese sanctuaries two elliptical chambers joined together by a passage across their shorter axes, with a niche at the end of this passage, in a straight line with the main entrance.

The portion of the building to the S.E. of A is constructed on a fairly steep slope, and traces of steps connecting its different portions may be seen at various points. For the rest, however, it is much ruined, and the same is the case on the N.

We may now proceed to describe the building in somewhat greater detail, beginning at the S.E. boundary-wall. This wall follows an irregular curve, and is built of rough stones of no great size. A considerable amount of pottery and some good flints were found just outside it (some in a

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burnt earth layer 1.00 down) as though they had been thrown out here from the interior of the building, the flints, more especially at its extreme south point, where it turns to run south-west. Somewhat scanty remains of two flights of steps ascending through it to the interior of the building may be seen at two different points. They both served as means of communication with the upper part of the building, and apparently led to a passage which ran outside the lower (S.E.) wall of A.

There are a good many standing stones in this portion of the building, none of them being preserved to any great height, so that the arrangement of this part is not very certain. But there was no doubt a massive terrace wall below Room A with vertical slabs once preserved to some height, and forming a façade; and here, as elsewhere, there were, besides, tie-slabs at right angles to the direction of the façade. This façade had, as is usual, footing blocks, which may be seen at *a*, where they are 0.65m. wide. Behind it was a space filled with loose stones, and then came the inner wall of A. The total thickness of this wall, without the footing blocks, was thus not less than 2.95m.

The most important part of the building is, as we have said, Room A. It is a semicircular room some 10m. in diameter; the inner wall, the lowest stones of which are preserved, was about 0.65m. thick. On the S.W. side there is a line of low slabs 0.55m. wide along its inner side, which possibly served as a seat, as they are 0.28m. above the floor.* The room has a torba floor 0.10m. thick; under it are stones and earth. In the earth a considerable amount of pottery was found, which is naturally of considerable importance for the determination of the date of its construction. The rock-bottom is 0.67 to 1.00m. down.

The chord of the semicircle is occupied by the shrine, a dolmenic niche resting upon small pillars, and only 0.30m. in height. It faces 35° E. of S. The covering stone measures 1.91m. in length by 0.81m. in depth, and 0.28m. in thickness; and the vertical front, which is slightly convex as regards its length, is finely pitted with round holes. The niche itself is curved, and measures 1.00 in width and 0.75m. in depth; the wall is built of small stones, the joints of which are formed of clay, which is still well preserved.

In the niche was formed a large circular ball of stone, 0.39m. in diameter, one side being slightly flattened.

In front of the niche is a low threshold stone, broken into three pieces, and measuring 2.50m. in length, 0.90 in maximum width, and 0.20 in thickness. The front edge of it slopes away slightly towards the torba floor. In the centre of this stone is a rectangular base measuring 0.47m. long, 0.24m. wide, and 0.08m. high. The vertical front of it shows signs of pitting, and it has no doubt been a pedestal to carry some sacred object which was revered at this shrine. On each side of the shrine the threshold is continued by another block, that on the west having an incised line along the top of the vertical face. The total length is thus 4.19m. Behind and beside these blocks are standing stones. To the S.W. of the shrine is a flight of three steps 1.58m. wide, with a raised threshold block between the second and third step leading up between vertical slabs (and therefore probably roofed), to Room D, which is paved with torba,† the rock being about 0.47m. down. The lintel block of the shrine has the upper surface smoothed; in it are two very shallow depressions 0.13m. apart and 0.035m. in diameter, which obviously bear some analogy to the pairs of holes connected by a small tunnel, which are frequently met with in the thresholds of the megalithic buildings of Malta. Beyond this is another slab, and then a raised threshold block, exactly like that at *c* in Corradino South. Then comes a threshold divided into three parts, at each end of which are small, slightly raised areas‡ upon which wooden door posts may have rested; and then comes a smaller slab. So far, at least, vertical slabs are preserved on the N.E. side of this slab pavement, and their presence may perhaps be supposed on the N.W. The original height cannot be determined, as those on the N.E. are truncated; but it would seem clear that there was originally one upper dolmenic niche above the shrine as it is preserved. Beyond this point there is a recess on the N.E. side measuring 0.82×0.46 (the floor block of it is 0.21 thick and lies above the slab pavement of the passage, and a burnt earth layer was found upon it).

* 15° E. of S. is a foundation of stones projecting 0·90 and 1·25 wide.

† In it was a layer 0·04m. thick of burnt earth, with a few small pieces of wood in it.

‡ 38 by 24 c.m. on S.W. 45 by 17 on N.E.

Behind and beyond it is the torba floor of another room, the greater part of which has fallen down the cliff, on the level of the main slab pavement; and here is a strongly marked burnt layer with charred wood in it, while on the S.W. the torba floor of D must originally have come up to the slab pavement of the central passage. This is here composed of two large slabs 0.22m. thick, running S.E. and N.W. Under them is a torba floor (scanty traces) 0.53m. below the bottom of the block.

After a space filled with broken stones, we reach two low steps. Between it and the upper block is a space 0.12m. high, closed by small stones; then comes the upper block. There is a vertical slab on each side. The passage then narrows considerably, still having vertical slabs on each side. At the point where it does so, the paving block of the passage has a raised area 0.77m. long, 0.36m. wide, and 0.06 high, which, no doubt, served as a base for a statue or baetylus.

Beyond it is a smoothed block with a fine small edging round it, and a smoothed vertical face on the N.W., which must, however, have mainly been covered by torba. This narrow passage leads into another room with a torba floor. The side walls are of vertical slabs, but do not go down within 0.30m. of the floor-level, being supported by a base of stones and earth. The block *b* is *in situ*, and in the recess on the S.W. of it a round slab of stone 0.45m. in diameter and 0.05 thick was found lying on the torba floor. The block *c*, on the other hand, has fallen from the side wall.

The exploration of the mound behind (1) led to no definite result; and it is probable that the building did not extend further in this direction, that the mound was piled up to support the back of (1), and that the stones to the W. of (1) have simply fallen.

A little pottery was found about six feet down on an irregular sloping block of stone, which is probably a part of the rock. The soil has apparently been washed down the slope in the course of centuries. At the lower extremity of it is a straight wall of small stones, no doubt a field-wall, certainly having no connection with the megalithic building. To the S.W. of the room is an area paved with torba, which rests directly on the rock, which is 0.15 below its upper surface. It is confined on the N.W. by a curving wall, but its limits towards the S.W. cannot be fixed.

To the S. of the building is a well. Lower down the slope are some very uncertain traces of walls of which nothing definite could be made.

BAGDAD.

Now that Bagdad is looming large on the horizon in connection with the British advance, special interest attaches to an article by Mr. William Warfield, entitled "Bagdad, City of the Kalifs," which appears in "Harper's Magazine" for this month. Of the ancient history of the towns that preceded Bagdad upon the same site, practically nothing, he says, is known, although Babylonian bricks have been discovered far beneath the level of the modern city, and in the days of Chosroes there was a market town of some importance in the same place. But Bagdad itself was founded in the eighth century of our era by Mansur, who made it his capital, assuming to himself the dignity of Kalif, the successor of the Prophet and head of the religion of Islam.

The model of Bagdad, Mr. Warfield goes on to say, was the older Persian capital of Ctesiphon, situated only a few miles away, and most of the builders employed by Mansur were Persians, for his desert Arabs were not versed in that art. Bagdad is considered essentially Persian in appearance, and especially is this true of the sacred edifices, in which the domes and minarets are quite like those of Ispahan and Meshed, and bear no resemblance to the more familiar types of Western Islam. This is regarded as true, despite the fact that of Mansur's original "Round City" no vestige remains above ground, and of buildings that date back to the days of the Abbasids we have but few. A few gates remain that date from the days of the Kalifate, but others have been built in Turkish times. Of interest to the antiquary, we further gather, are two relics of the Kalif Mustansir dating from 1233 and 1236. The first of these was originally a college, and is now used as a custom-house; the latter is a minaret in an outlying part of the city, which is in a most unfortunate state of disrepair. Even older is the Khan Orthma, which dates from the

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twelfth century and contains some beautiful carvings. These buildings were all built for strength, all of brick laid in mortar of the best possible quality, but used sparingly because of its scarcity. There are many ruined mosques and tombs in and about the city, which are generally octagonal in shape, roofed with shallow domes set on squinch arches. The latter, however, are often covered with a dome resembling a pineapple, composed of a series of alveolate niches, or squinches, set in converging courses, one above the other. The best example of this is the reputed tomb of Sitt Zobeida, wife of Harun-al-Rashed, situated near West Bagdad.

We drive, continues Mr. Warfield, through the north quarter of the city, where many of the caravanserais are. Here is the arsenal, which was once the Kalif's palace. Pause a moment and consider that from this very gateway Harun-al-Rashed used to sally in disguise to try the temper of his people, and in one of these upper rooms the fair Zobeida wove the tales of the thousand and one nights.

Turn now and notice the dome, patterned with gaudy tiles, clinging to the cracks of which are many pigeons. It is the dome of the oldest mosque in Bagdad. At its door Harun used to stand and mingle with the beggars. Before its pulpit the Sultan Sulieman the Magnificent had himself made Kalif, thus ending the existence of Bagdad as the capital of Islam. A few minutes more bring us to the mosque of Abdul Kadir. The main part of the building is covered by a huge, low, whitewashed dome, beside which, in curious contrast, is the most beautifully decorated dome in the Mohammedan world. It is covered with tiles, making a design like a beautiful Persian rug, both in tasteful treatment and subdued colouring. The cylindrical wall below is similarly decorated. Below a ring of arabesques is the most exquisite tilework in the world. The minarets are of almost equal beauty, while the gardens about the mosque are among the most lovely in Bagdad.

The spacious buildings and beautiful gardens of the residency are the centre of the European colony in the city. A short time ago this comprised only a few merchants and the Consuls of the great Powers. But to-day, we are told, there are several engineers connected with the Irrigation works started under the direction of Sir William Willocks, all of whom are Englishmen, and a considerable number of German and other Continental engineers engaged on the Bagdad Railway.

ART IN LONDON.

THE FINE ART SOCIETY.

MR. NORMAN WILKINSON'S studies in the land of our enemies in the Near East and Messrs. Flint's studies in the Entente territories are brought into propinquity in the galleries of the Fine Art Society in New Bond Street. The mental tyranny exercised by the great war is here apparent in the superior interest with which we must regard Mr. Wilkinson's colour sketches in Gallipoli and the Dardanelles, the water-colour work of Mr. W. Russell Flint and Mr. R. Purves Flint taking a very secondary place. Mr. Wilkinson's studies will shortly be embodied in a book, for the text of which he, too, will be responsible. As an artist his power of portrayal and his sense of sympatica are made fully apparent; his ships betray very largely the same intimacy of association as Mr. Kipling displays in his word-pictures. Attention may be more particularly directed to a few specific works, such as "C Beach, August 8," "Dressing Station, A Beach," "Hospital Ships off Suvla Bay" (a poetic vision in its purple-toned treatment), "Salt Lake from Chocolate Hill" (26), "Anzac" (49 and 53), and the ships portrayed in Nos. 14, 28, 33, 41, 44, 51, and 54; in the whole collection of sixty works there are indeed but few that fail to prove attractive.

The quality of Messrs. Flint's sketches cannot compare with Mr. Wilkinson's work. Whether we regard the sketches in Italy, France, the Low Countries, or our own isles, there is in general a weakness of characterisation on the one hand or a harshness of delineation on the other, equally displeasing; where human models are introduced they prove to be of quite unideal types, and there is an all-pervading crudity which is to be deplored. Let us seek out some works meriting words of praise: "Dunkirk Beach" is an artistic sketch by Mr. Purves Flint, where the sky and sand are well portrayed and the picture composes well. The latter is true, too, of Mr. Russell Flint's "Kathleen and Polly": the group of girls intent upon bathing preparations is well modelled. "Ben Vorlich" is deserving of unstinted praise, and besides this work there is one other of Mr. Russell Flint's to which we will direct appreciative glances, and this is "Ardrostan." Mr. Purves Flint may be commended for "Craigentinny Meadows" and "Hauling a Barge, Paris"—and for the rest we preserve silence.

WINTER EXHIBITION OF THE ROYAL SOCIETY OF PAINTERS IN WATER-COLOURS.

THE present war would seem, in its effects, to be even as the curse upon the luckless Lady of Shalott; for when artists glance even mentally, unconsciously, perhaps even unwillingly, upon the existing conditions, the mirror of Art cracks from side to side and we obtain henceforth only blurred representations. In the present exhibition we notice the same falling-off as we have had occasion to observe elsewhere; and, endeavour as we may to lay the blame upon our own possibly jaundiced temperament, we cannot in all honesty succeed in the attempt.

There is certainly some good work to be seen, as witness Mr. T. M. Rooke's "Porch, Malmesbury Abbey," and "Temple Church, London"; too much praise cannot well be accorded to the former, and if a note of tempering criticism is to be struck about the latter, it is on the score of this interior being portrayed with an excess of light. Mr. Albert Goodwin attracts us to a less extent than usual, though in "The Pyramids" and "Harlech Castle" we gratefully recognise the master-touch. The President, Mr. Alfred Parsons, R.A., also contributes one thoroughly worthy piece in "The Chimney Campanula," his other works not calling for special notice. Sir Ernest Waterlow, R.A., has, as usual, been prolific, and in "Chalk" we see an excellent example of style and one of *the* pictures of the exhibition; this, too, may be said of Mr. C. Rigby's "Pond and Azaleas," and the same artist in "Elterwater" supplies a very rhythmical and charmingly coloured sketch in neutral tones.

Mr. Charles Gregory contributes only two pictures, but both of them breathe his genius for portraying sylvan charms and country fascination. Mr. Hughes-Stanton's "Stormy Evening" might even be called a dirty one, if we may judge by the palette used; nor do we care for Mr. Charles Sims more than hitherto, and it insults the public taste to show such a misshapen, crude daub as "Bathers." Mrs. Allingham's "Roses in a Venetian Garden" is a little gem in bright, though not garish, colouring. Decoratively or even diagrammatically regarded, Mr. E. Alexander's "Bullfinches" deserves appreciative notice; but "The Desert—Egypt" provides no subject: were we inclined, we might retail here an anecdote about a picture of "The Israelites' passage over the Red Sea" peculiarly appropriate to Mr. Alexander's sketch. Mr. F. E. James is not successful in "Fuchsias," where the delicate colour and shaping of the prototype is lacking. Mr. W. T. Wood, in a "Storm-stricken Ash Tree," departs from his usual style and with pronounced success. Mr. J. C. Dollman is to be congratulated upon "The Keeper's Cottage" and "Sussex Summer," the latter being particularly attractive in its light, atmosphere, and realism. Mr. Wainwright shows but one work—"A Maid of the Hostel"—and this is noteworthy for the chiaroscuro, the massing, and the focussing. Mr. H. Henshall has an intimate study in "His First Steps," and Mr. John Parker presents a vivid study of "An Old Jew," though the hands are not too well modelled. A group of works by the late Walter Crane possesses interest, though the artistic merits are not compelling. Mr. Reginald Barratt shows good local colour in "Corner of a Venetian Palace." In this brief notice we have directed attention to most, though not all, of the contributions which we regard as meritorious; at the same time, some of the space which we have allotted has been devoted to adverse criticism, and when we remark that the total exhibits number 237 our opening remarks will be understood in their application to this, the 165th exhibition of the Society.

NAIRN County Council have adopted a report by Messrs. Walker & Duncan, engineers, Aberdeen, as to the erecting of new bridges at Cawdor and Fornighty to take the place of those washed away by flood in September last. Two schemes were provisionally approved, and it was agreed to apply to the Road Development Board for a grant towards the expense, and failing this to apply for a loan without interest.

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Birmingham.—Halesowen Grammar School, Wolseley Motor Works, Barnsley Hall Asylum, Bromsgrove.
Broadmoor.—Criminal Lunatic Asylum.
Barnsley.—Workhouse; Infirmary; Baths and 8 Council Schools.
Brighouse.—Clifton Church.
Chester.—Town Hall.
Chadderton.—Town Hall.
Derbyshire.—Darley Dale, St. Elphin School.
Glasgow.—Blythwood Hotel; Masonic Halls, Rutland Crescent; City Bakeries, Ltd.; Salvation Army, Bath Street; Imperial Tobacco Co., Tobago Street; Port Dundas Distilleries; John Miller, Ltd., Printers, 332-334 St. George's Road; Kilmun Seaside Homes.
Leeds.—Town Hall; Municipal Buildings; Pearl Buildings; Market Hotel; Meadow Lane and Marsh Lane Police Stations; Kirkstall Road Baths; Free Libraries; Eldon Chapel; Beeston and Hunslet Wesleyan Chapels; Sion Chapel, Skinner Lane; Small Pox Hospital, Killenbeck.
Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.
Manchester and District.—Victoria Hotel, First-class Dining Rooms, Central Station; Lake Hotel, Belle Vue; Kardomah Café, St. Anne's Square; St. Wilfred's Church, Hulme; Nursing Home, Old Trafford; School of Technology; Art School; Geographical Society's Buildings, St. Mary Parsonage; Palatine Buildings; Picturedrome, Pendleton; Whittlebrook Chapel, Walkden; Trafford Arms, Alderley Edge; Axe and Cleaver Hotel, Altrincham; Bridgwater, Eccles; Crown Hotel, Longsight.
Nottingham.—Mikado Café.
Oldham and District.—St. James' Church; Free Library and Art Gallery; Infirmary, Imperial Picture Palace, Reform Club.
St. Helens.—Borough Sanatorium, Provident Hospital, and Council Schools.
Sheffield.—St. Jude's Church; Christchurch, Pitsmoor; Sanderson Bros., Newbold; Sword and Bayonet Works; Heeley Picture Palace; Victoria Hospital.

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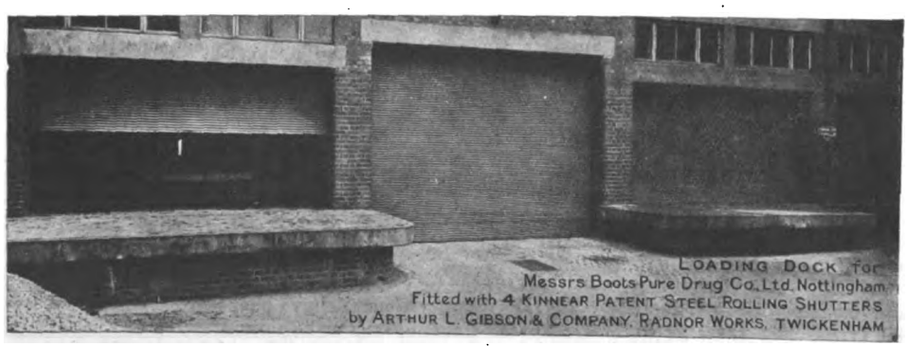
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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Newcomen Memorial, Dartmouth.

SIR,—It is proposed to establish at Dartmouth a permanent memorial to Thomas Newcomen, inventor of the atmospheric steam engine, and it has been suggested that it should take the form of a statue, a bust on pedestal, or an obelisk suitable for erection in the public gardens. The amount subscribed is not large, and probably not more than £140 would be available, but I should be glad to receive any suggestions from your readers on the subject, and to know whether a presentable and durable memorial could be obtained for the amount I have stated.

Thanking you in anticipation of the insertion of this in your valuable journal, yours, &c.,

T. F. CASTON,
Hon. Secretary, Newcomen Memorial Committee.
South Ford Road, Dartmouth, Devon: Nov. 29, 1915.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Reading.—Proposed Congregational Church, Wokingham Road.

DERBYSHIRE.

Chesterfield.—St. Augustine's (new) Church, Derby Road (£2,500).

Matlock.—Oldham House Hydro: addition and alteration.

DEVON.

Dipfford.—Proposed isolation hospital for Diptford and Wrangaton.

DURHAM.

Consett.—The "Royal" Picture House: additions and alterations. Mr. J. J. Eltringham, architect, Derwent Street, Blackhill.

Philadelphia.—Two houses, Lumley Crescent, for Messrs. Liddell Brothers.

ESSEX.

Chelmsford.—Bungalow, Swiss Avenue, for Mr. T. L. Nicholls.
House, Swiss Avenue, for Mr. W. Holmes.

Ilford.—Electrical Works, Grove Road: accumulator works, offices, &c. Messrs. C. Heathcote & Sons, R.I.B.A., architects, 110 Cannon Street, London.
Garage, Sunnyside Road, for Mr. R. S. Juby.
Sixteen houses, Blenheim Avenue, for Mr. W. J. Hobbs.

Purfleet.—Twelve cottages, for the Thames Paper Mills Company.

LEICESTERSHIRE.

Hinckley.—Factory, Mill Hill Road, for Messrs. Bolesworth & Jennings.
Factory, New Road, for Mr. Howard.
Two houses, Rugby Road, for Mr. W. Moore.

MONMOUTHSHIRE.

Caldicot.—Slaughter-house, Sandy Lane, for Mr. W. Jones.

NOTTINGHAMSHIRE.

Worksop.—The "Fisherman's Arms" p.h.: alterations, for Mr. W. Beard.

SURREY.

Chessington.—"Chessington Lodge": additions and alterations, for Mr. F. Barker.

WARWICKSHIRE.

Birmingham.—Four municipal cottages (£900).

Coventry.—Garage, off Foleshill Road, for Messrs. Courtauld & Co., Ltd.
Garage, Upper York Street: extension, for Messrs. Alfred Herbert, Ltd.
Radford House, Radford Road: gymnasium, &c., for Mr. C. V. Pugh.
House, Churchill Avenue. Mr. E. Stidworthy, builder, Newland Road.
Six houses, Durbar Avenue, for Mr. T. W. Roulston.
Two houses, Styvechale Avenue, for Mr. H. Hirons.
Two houses, Styvechale Avenue, for Mr. W. H. Satchwell.
Four houses, Bray's Lane, for Mr. G. Claridge.
Two houses, Allesley Old Road, for Mr. A. Taylor.
House, Belvedere Road, for Mr. J. L. Aldridge.
Two houses, &c., Binley Road, for Mr. C. Blockley.
Four houses, Collingwood Road, for Mr. J. G. Hewlett.
Eight houses, David Road, for Mr. J. Gardner.
Three houses, Foleshill Road. Messrs. H. Goode & Son, builders, Holmsdale Road.
Two houses, George Eliot Road, for Mr. W. F. Hancox.
Six houses and house with shop, Harefield Road, for Mr. C. A. Anelay.
Eleven houses, Melbourne Road, for Mr. W. Bromley.
Two houses, Queen Mary's Road, for Mr. J. Clifton.
"Southwark," Rochester Road: extension, for Mr. E. Hayward.
House with shop, St. George's Road, for the late G. Storer's executors.
Six houses and house with shop, Sir Thomas White's Road, for Mr. T. F. Bird.
Shop, Holbrook Lane, for the Coventry Stamping Company, Ltd.
Five houses, Wyley Road. Messrs. Clarke & Sons, builders, Coronation Road.
Premises, Northey Road: extension, for Messrs. Webster & Bennett, Ltd.
Premises, 10 Butcher Row: additions, for Messrs. Browetts.
Stable, &c., Clay Lane, for Messrs. Youell & Brooks.
Works, Gosford Road, for Messrs. Hotchkiss et Cie.
Workshops, Swan Lane, for the Coventry Perseverance Co-operative Society, Ltd.
Workshop, Northey Road: extensions, for the Sterling Metals, Ltd.

YORKSHIRE.

Churwell.—Stables. Mr. T. A. Buttery, architect, Exchange Buildings, Queen Street, Morley (and No. 1 Basinghall Square, Leeds).

Eldwick.—House, Otley Road, for Mr. A. Wildman.

Mytholmroyd.—Garage, Caldene Avenue, for Mr. R. H. Pickles.

WALES.

Cyfarthfa. — Church: extensions. Messrs. Johnson (F.R.I.B.A.) & Richards, architects, Glebeland House, Merthyr Tydfil.

Queen's Ferry.—The Queen's Ferry Hotel: alterations.

SCOTLAND.

Glasgow.—Buildings, Reid Street, Govan, for Govan Entertainers, Ltd.
Offices, Old Edinburgh Road, for Messrs. W. Beardmore & Co., Ltd.
Premises, Canal Street, Port Dundas: additions, for Messrs. A. Cross & Sons, Ltd.
Clydesdale Ironworks, Possilpark: extension, for Messrs. A. & J. Main & Co., Ltd.
Works, Merkland Street, Partick: additions, for Messrs. A. Low & Sons, Ltd.

IRELAND.

Castlebar.—Tuberculosis dispensary. Mr. Butler, architect.

AT the last meeting of the Lancaster Town Council further large expenditure was sanctioned, owing, it was stated, to the establishment of new works in the town. A scheme for extending, at a cost of £60,000 or £80,000, the water supply by using the Abbeystead storage reservoir (up to now used only to compensate millowners on the Wyre), was sanctioned after some debate, in which alternative schemes were spoken of. It was agreed to expend £4,200 in sewering a part of the town where new works are being erected, and it was stated that this would make a lot of land suitable for building purposes. At previous recent meetings it was decided to spend £18,000 immediately in extending the gasworks, and to apply for a provisional order for £80,000 for this and prospective enlargements.

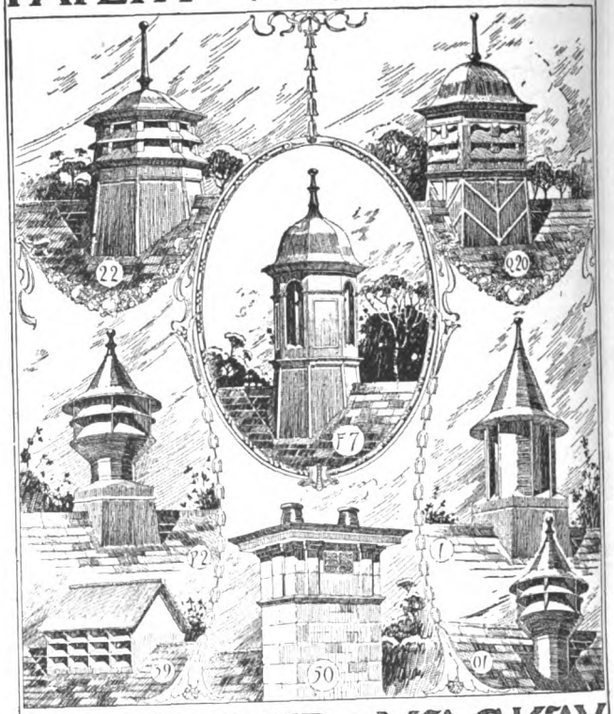
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, December 10.

Royal Academy of Arts : Distribution of Prizes to the Students at 4.30 P.M.

Town Planning Institute : Paper entitled "Arterial Roads in Greater London," by Mr. W. R. Davidge, F.S.I., A.M.I.C.E., A.R.I.B.A., at 9 Conduit Street, W., at 6 P.M.

Monday, December 13.

Royal Institute of British Architects : Ordinary Meeting. Nomination of Candidates for Membership, at 3 P.M.

Surveyors' Institution : Paper entitled "English Timber during and after the War," by Mr. M. C. Duchesne, F.S.I., Hon. Secretary of the English Forestry Association, at 4 P.M.

Trades Training School : Presentation of Prizes by Sir Thomas G. Jackson, Bart., R.A., at Carpenters' Hall, at 8 P.M.

Victoria and Albert Museum : University Extension Lecture XI. on "The Louvre and the Tuileries, Paris," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

Tuesday, December 14.

Illuminating Engineering Society : Discussion on "Recent Developments in Electric Incandescent Lamps in Relation to Illuminating Engineering," to be opened by Professor J. T. Morris at the Society of Arts, at 8 P.M.

Wednesday, December 15.

Northern Architectural Association : Ordinary General Meeting.

Thursday, December 16.

British Museum : University Extension Lecture XII., on "Greek Theatres, Tombs, Town Planning, and Public Buildings," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

ORGANISATION.

INDIVIDUALISM is an essentially British characteristic, and, valuable as is the independence of initiative that this characteristic connotes, there are departments of world activity in which organisation is superior to individualism. The Allies have been, up to the present, worsted in the present war by the superior organisation of the enemy, who now holds Belgium, Poland, Serbia, and some of the richest provinces of France, as against a small foothold of France in Alsace, of Britain in Gallipoli, of Italy in her "Irredenta" provinces. Before the war Germany, by superior organisation, had made immense strides towards the capture of the world's manufacture, commerce, and finance, showing that the day of the merchant venturer, the individual colonist, has passed; that now the individual must be merged in the team, must be a unit component of an organised body. Outside Germany the same lesson has been taught in some degree by the trust, the combine, and the trades union. The manufacturing industries of Britain have been but as guerillas in face of the organised and well-equipped army of German industrialism.

Therefore it is that we welcome the attempt of the Engineers' Club to organise the British engineering industry to enable it, with its admitted superiorities in quality of output, to compete on even terms with its rivals overseas for a fair share in the world's markets. The capital invested in the British engineering industry is estimated at over 300 millions sterling. If firms representing this huge sum would co-operate and equip themselves for a determined and well-organised effort, there would be no question of their ability to secure a larger proportion of the trade of the world than they already enjoy. And this extension of business does not necessarily imply any considerable increase of the capital at present employed, at any rate until such additional capital were provided by the increased profits that might be obtained by organisation and co-operation.

The method by which such organisation and co-operation is to be effected is proposed by a Committee of the Engineers' Club to be the establishment of an Association on a non-trading and non-interference-with-prices basis. This Association should comprise British manufacturing concerns in all branches of engineering, aim at the inclusion of every such concern, have a constitution giving it a legal status framed on broad principles, and possess an efficient and energetic management.

Such an Association would speak with a powerful collective voice in matters with which Parliament was concerned, would assist the Government in questions connected with industry and commerce, and would be entitled to representation on the governing bodies of universities and technical colleges. The Association would not trade in any way whatever. It would assist members equally and without distinction in the obtaining of business, and would generally act in the furthering of the interests of the industry as a whole.

In an ideally organised State it might be conceivable that the organisation of every important national industry would be part of the duty of the Government, but such an ideal would be far beyond realisation in Britain, first and foremost because we never have had and, as far as can be seen at present, are never likely to have a Government capable of such administrative ability. The German nation has one great advantage in Junkerdom, that the governing caste recognises that it can only maintain its position by efficiency in government, and so every member is adequately trained in efficiency, and, if he does not attain it, is remorselessly fired. Our Governments do not attain and keep their position by virtue of efficiency, but, to whatever party they belong, by adroitness in catching votes and obtaining support. The clever Parliamentarian, not the able administrator, becomes the ruler of England. When he muddles the nation's business, his chief endeavour is to hide the muddle.

Therefore any possibly successful attempt to better the conditions of a great British industry should be independent of the Government and be undertaken by some voluntary organisation of the whole industry, based upon a recognition of the interests common to competing firms, and common also to employer and employed. It should have amongst its aims the improvement of manufacturing processes, the development of foreign trade, the lessening of strife between capital and labour, the efficiency of co-operation between rival concerns, between manufacturer and workman.

It is proposed by the committee of the Engineers' Club that the suggested Association should operate through a number of committees directed by a council through a general manager, the council being representative and periodically elected by the members of the Association, and the general manager a thoroughly competent business man of unimpeachable integrity. The various departments of the Association's work, for each of which a standing committee would be appointed, are defined as general purposes, intelligence, production, inventions and patents, publicity, finance, education and research, Parliamentary.

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The work of the general purposes committee would include the bringing to bear of pressure upon railway, canal, and shipping companies for the improvement of conditions and reduction of freights, and also the settlement of disputes arising between members. The intelligence committee would collect information which the publicity committee would disseminate amongst members, as well as promote the general advertisement of British engineering and assist members in the translation and adaptation of their catalogues for foreign markets.

The production committee would, in our opinion, be one of the most important and, if properly managed, one of the most beneficial, as its work would include the promotion of a better feeling between manufacturers to the general good, to raise the standard of manufacturing methods and organisation, to encourage a keener study and appreciation of customers' requirements, and a greater readiness to satisfy them. It would also doubtless introduce into British industry one of the best features of German method the co-operation of rival firms in production, by co-ordinated sub-division of manufacturing operations, thus substituting for cut-throat competition the increased efficiency of specialised activity, for it is obvious that if half a dozen firms divide an order between them, each can perform its own part more efficiently than by endeavouring to compass the whole.

In education and research a single committee, acting jointly for the benefit of the whole industry, should be able to attain far more important and satisfactory results than would be possible for even the wealthiest of independent firms, though they were of the calibre of the great Continental and American engineering companies and still more than are attainable by the comparatively small establishments and smaller research departments of most British engineering firms.

The Parliamentary Committee would have as its share the task of performing the necessary operation of pushing in the right direction our characteristic British Governments, which never lead the nation until they are compelled by the fear of losing their job.

Such an Association as is suggested could not operate successfully without ample funds, which, the Committee propose, should be secured from members mainly in the form of annual subscriptions—not of uniform amount, but according to a graduated scale, regulated, it is hinted, by the capital employed by the various members. This would be a detail that would require very careful handling by the council, in our opinion, as the proportion of capital to turnover and of turnover to profit is very far from uniform amongst engineering firms. As a basis for finance, it is suggested by the Committee that an annual subscription equivalent to one-tenth of 1 per cent. of the 300 millions capital in the British engineering industry would provide an income of £300,000.

The Committee rightly make the proviso that the constitution of the Association would require careful framing, and that its membership should be restricted to approved British engineering concerns, in which a large majority—say, three-fourths—of the beneficial owners should be British subjects—and, we would add, native-born, and not naturalised British subjects.

It may be asked what the establishment of such an Association as is proposed has to do with the building industry. Apart from the consideration that the welfare of every British industry is of vital concern to our building trade, the activities of modern architecture are so closely connected with engineering in almost every direction that the improvement of British engineering is a matter of very high importance to architecture. Hence our sympathies are entirely with the proposal we have outlined, which, we trust, may result in the establishment of a powerful co-operative body that shall both increase the prosperity of the nation and rescue the building trade from the many inconveniences that have attended the successful penetration into our country of German specialities, inventions and plagiarisms in building material.

NOTES AND COMMENTS.

THE threat that the famous statues at Innsbruck are to be broken up for their value as material for munitions is one of the most appalling that lovers of art have had to face among the many grievous mischances that have befallen art treasures during the last sixteen months. One can only hope that the high esteem in which the Tyrolese hold these treasures and the value of these people to the German Empire as amongst its best supporters and strongest fighters in their own peculiar sphere may be a sufficient deterrent to prevent the iconoclasm.

It is convenient for municipal authorities to make the owners of small property their rate-collectors, but the practice has the great disadvantage that the man who pays his rates and taxes as a part of his weekly rent fails to recognise that his citizenship entails obligations, and that he, as much as the more wealthy individual, has to pay his share of the cost of the city's government, cleansing, paving, lighting, inspecting, hospitals for infection, homes for paupers, drunkards, criminals and lunatics, education of his own and other people's children, cleaning of verminous children and the feeding of hungry ones, and all the salaries of the officials of the municipality as well as of the State. It would be an obvious improvement if landlords, their agents and collectors, were to give receipts for the weekly collections in two distinct amounts, *rent* of the dwelling and rates. Thus it would be brought home to the tenant that the whole of the 8*s*. 6*d*. a week which he pays does not go into the pocket of the greedy and grasping landlord. It would be a distinct advantage to the sense of citizenship and make for more intelligent economy if the man who has the vote and elects the municipal councillor realised the extent to which he personally pays the piper for all the improvements which the elected representatives of the people are so ready to provide with other folks' money. There is a great deal to be said in favour of the suggestion now brought forward in Liverpool that the successful example shown in Ireland should be followed and rent courts established to fix a fair rent and enforce its payment.

A rent court could do much to create a better understanding and put the whole of the transactions between owner and occupier on a saner and more business-like basis. Business men sitting in that court week by week could make orders as to excessive rents. Such a court could determine what rent should be paid by a tenant to a house owner and should, of course, have the power to enforce its award. The landlord would get his rents and the tenant could ventilate his grievances, and cases of great hardship would be dealt with. The landlord who acted unjustly would be brought out into publicity and shown up in the full light of day, while the tenant would have to face up to his civic obligations. The general result would be a vastly improved city.

The acuteness of the house famine which the Government's action towards building has intensified throughout the country has in Manchester stirred the representatives of labour to endeavour to bring pressure to bear in the direction of pushing the Government on to a more enlightened statesmanship. At a recent conference in the city Councillor W. T. Jackson, chairman of the Sanitary Committee of the City Council, stated that investigations by the Housing Sub-Committee showed that there are practically no houses rented at 8*s*. 6*d*. a week and under now empty, although in normal times about 3,000 are in that condition. He also pointed out that although 2,500 new houses are needed annually to meet the increasing population of the city, such a number has not been added since 1907, and in the three years ended on October 31 last only 997, 748, and 410 respectively were certified as fit for human habitation.

It is in order to meet these conditions and the overcrowding which has resulted and is likely to increase that joint action is being taken by the Manchester and Salford Trades Council, the Labour party, the Labour group in the City Council, and the Women's Co-operative Guilds.

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They are forming a joint deputation for the purpose of enlisting the co-operation of the Sanitary Committee of the City Council in bringing pressure to bear upon the Local Government Board, and thus obtaining permission for the Sanitary Committee to proceed with housing schemes it already has in hand but which have been suspended.

We often hear contrasts drawn between the cheapness of labour abroad and the wages paid in England; but in a lecture at Leeds recently Mr. Seebohm Rowntree rightly pointed out that low wages in Belgium do not necessarily mean cheap labour. In that country he said that bricklayers, carpenters, and plumbers' wages varied from threepence per hour in the small towns and the country to the magnificent sum of fivepence per hour in such large towns as Antwerp, Brussels, and Charleroi; bricklayers' labourers got twopence per hour in the smaller towns and the country districts, and rose to $3\frac{3}{4}d.$ in the large towns. Fitters and turners were better paid—$3\frac{3}{4}d.$ in the small towns, up to $5\frac{1}{2}d.$ in the large towns. This lowness of wages was not due to any great difference in the cost of living, though rents were very much lower. The causes were (1) the Belgian workman did not produce as much in the hour as English workmen, partly because of the fact that he was very much worse educated. Productivity was low because the intelligence had not been trained; (2) the lack of a stimulating environment. As they were slow workers, there was no snap about the job; but when Belgians emigrated to America, and got a more stimulating environment, they could keep up with the Americans.

The object in view of the Civic Arts Association which formed the subject of their deputation to the Lord Mayor of London, has our cordial sympathy. The deputation, including, among others, Mr. George Clausen, R.A., and Mr. John Lavery, A.R.A., waited upon the Lord Mayor to interest him in the aims of the Association. Mr. Edward Warren, who introduced them, said that at the close of the war there would be a great demand for national, regimental, local, and domestic memorials of those who had fallen, and there would be a national reaction in the architectural world after its enforced time of small output. It was of the greatest importance that such memorials should be excellent in both design and workmanship. They might often take the form of public buildings, such as recreation halls, or of small collections of beautiful objects for schools. There was thus a great chance and opportunity of bringing into prominence the advantages of order and beauty and town-planning. Other speakers addressed the Lord Mayor, who, expressing his great sympathy with the objects of the Association, consented to allow it to hold a public meeting at the Mansion House, under his presidency, on Friday, January 28.

We are glad to be able to congratulate Mr. Thomas H. Mawson on the excellent example he has set to town-planners in general in his plans for the reconstruction of Athens by producing a scheme that will pay its way. Too many of our would-be town-planners, as we have more than once pointed out, ignore considerations of finance in their purely academic conception of city improvements. In a description of his plans, which Mr. Mawson recently gave to the members of the Town Council of his own town, Lancaster, he stated that the work of erecting working-class dwellings on the classic Plain of Marathon was now proceeding, preparatory to a removal of the old "shacks" in which people lived in the near neighbourhood of the Royal palaces. The completed plans followed very largely the preliminary plans, the modifications being designed to secure better and finer views from central points of the ancient parts of the city. Mr. Mawson showed elevations of the Royal Palace, the Houses of Parliament, the University, and other buildings, and mentioned that the Classic style of architecture generally adopted in these buildings was favoured by the Queen as being English. The wide roads, the arrangements for tramway, motor, and pedestrian traffic were described. A singular feature was the "parks," or belts of trees, which are necessary to protect the city from the dust driven by the winds. Up and down the working-class quarters are playgrounds, ranging from half to one and a half acres in extent, and fitted with children's theatres and libraries, while the houses themselves are built in squares, with vines, pepper, and other trees providing grateful shade. The houses are designed to let at from 5*s.* to 9*s.* and 10*s.* per week. Mr. Mawson made the interesting statement that this enormous reconstruction would not cost the city a single penny, for already offers had been made for certain areas which would result in sites being cleared and new buildings put up according to the new plans that would result in a profit. The whole of the improvements, when carried out, would more than pay for themselves, to say nothing of the increased rateable value. This result was only possible, he added, because Athens was a progressive city with an increasing population, and because questions of private ownership did not arise as in England and elsewhere. The scheme was to be completed in two decades, and provision was made whereby wealthy Greeks could make contributions to secure memorials in the shape of buildings, parks, or other additions to the scheme.

The current number of the "Journal of the Society of Arts" draws attention to a report by the Washington, U.S.A., Bureau of Standards on a device for computing values of tungsten lamps. Our contemporary says:—

It is well known that a change in the voltage applied to the terminals of an incandescent lamp changes the candle-power, current, and, in consequence, the wattage (watts = volts × amperes) and the watts per candle. If these changes are followed from point to point, relations among the variables may be found and plotted as characteristic curves. The equations of these characteristic curves for tungsten lamps have been found by the Bureau of Standards of the United States Department of Commerce, and a special application of these equations has been made in a device which gives a solution of problems involving voltage, candle-power, and watts per candle.

In this device the volt scale is movable, and, by setting it to the other scales at a point corresponding to the observed watts per candle, values of per cent. candle-power and of actual watts per candle may be read directly from the proper scales, or the converse problems may be solved. Use of this device results in a decided saving of time when compared with other methods of characteristic evaluation. In connection with the device are given tables of values used in its construction and practical examples illustrating scale settings.

Copies of the report upon this subject may be obtained upon application to the Bureau of Standards, Washington, D.C.

COMPETITION NEWS.

BRIGHTON.—The Town Council about a year ago sanctioned the expenditure of 175 guineas to be offered as premiums for a competition in connection with the proposed Aquarium plans, and a further fifty guineas on an assessor's fee. An assessor, who was nominated by the President of the R.I.B.A., has several times been to Brighton in connection with the scheme. But at the last meeting of the Town Council it was decided by a majority of two to postpone all such expenditure in view of the uncertainty of the present situation and to hang up the scheme indefinitely.

MR. CHARLES SIMS, A.R.A., was on Monday last elected a Royal Academician. As a painter Mr. Sims has met with ever-increasing success since he began in 1890 to study art at the National Art Training School, South Kensington, at the age of seventeen, after a brief experience of commercial life. Public honours have fallen to him in plenty, and his admission into the ranks of the R.A. will be welcome to both artists and the public.

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ILLUSTRATIONS.

SCREEN IN NORTH AISLE, THE CHURCH OF THE HOLY SPIRIT, CLAPHAM COMMON.

The autograph drawing we reproduce shows the design by Mr. H. P. Burke Downing, F.R.I.B.A., for the screen in the north aisle of the Church of the Holy Spirit, Clapham Common, forming the enclosure to the side chapel. It is intended to be executed in English oak. A photographic view of the interior of the church appeared in "The Architect" of February 20, 1914.

LITHOGRAPHS BY M. JAN POORTENAAR AND MR. L. C. MULLGARDT.

The originals from which our illustrations are produced are now in the exhibition of the Senefelder Club, of which a critique appears on p. 456.

THE ENTRANCE, LITTLE GANILLY, MERSTHAM, SURREY.

This house was built about five years ago, and has recently been extended by the addition of a large billiard-sitting-room and verandah. The builder was Mr. J. J. Pink, of Merstham. Wrought-iron work was executed by Mr. Thomas Caslake, of Carlton Works, Kentish Town.

Mr. W. G. Wilson, F.R.I.B.A., was the architect.

WESSEX GARDENS COUNCIL SCHOOL, HENDON.

The completion of this school has been greatly delayed on account of the war. It is a three-department school, and provides accommodation for over 1,000 children at a cost of about £16,000. The site was a rapidly sloping one, which entailed much excavation and the necessity for heavy retaining walls.

Mr. W. J. Maddison, of Canning Town, was the general contractor, and the sub-contractors were: for heating, Boyd & Co., Great Portland Street; electric-lighting, Arthur Ashmore, Brixton; wood-block floors, Acme Flooring Co., Ltd.; terrazzo floors, Burke & Co., Rathbone Place; iron casements and gearing, Henry Hope & Sons.

Mr. W. G. Wilson, F.R.I.B.A., is the architect.

THE CHAPELS AND ALTARS OF NORWICH CATHEDRAL.

By H. C. Beeching, D.D., D.Litt., Dean of Norwich.

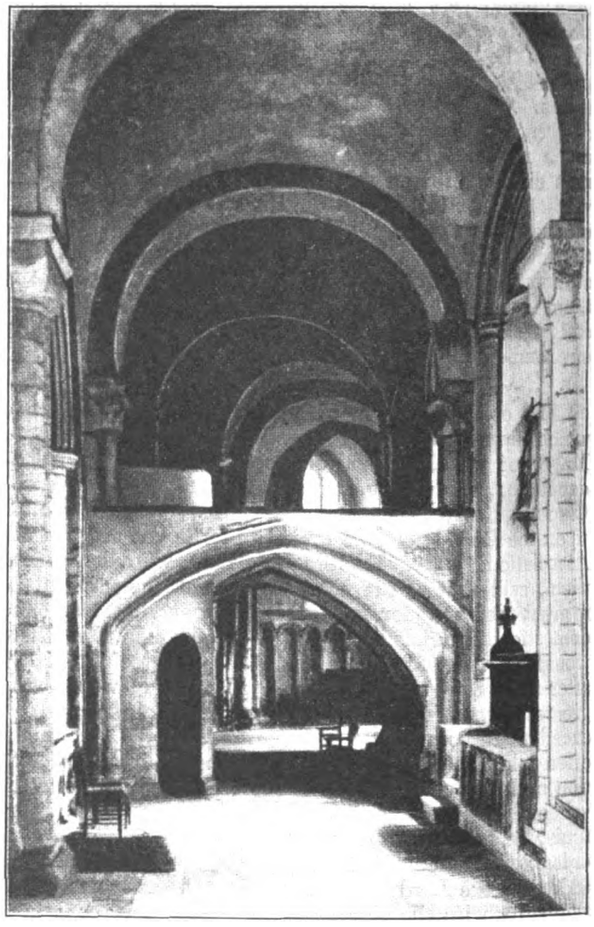
(Concluded from last week.)

We come now to speak of the altars dedicated to particular saints. In 1289, the first year for which we have full details of the oblations, the entry in the Sacrist's roll is as follows:—De magno altari usque in diem translationis Sti Thome £29 14*s.* 8*d.*, cum visitatione Suff., et Sudburie et Sancti Ypoliti. De reliquiis 48*s.*, De altari Marie £11 0*s.* 10½*d.*, De trunco Walteri 77*s.* 8½*d.*, De trunco crucis 36*s.* 1½*d.*

Of the High Altar, and that in the Lady chapel, and the alms box at the head of Bishop Walter's grave I have already spoken. Before I come to the saints, at the head of whom stands St. Hippolytus, let me say a word about the relics and the cross.

Of the relics preserved in the Cathedral, I have unfortunately mislaid the list given me by some good friend. The most famous of them was a phial of the milk of the Blessed Virgin. The tradition is that they were exhibited to pilgrims from the gallery which crosses the north procession path, and although antiquaries have in recent years disputed this and found other uses for this gallery, it is put beyond doubt by an entry in a Sacrist's roll. In the year 1425 this gallery was extended east and west, probably at the charge of Lady Morley, whose arms appear on some tiles, and the work is then described as "sub reliquiis." Item, Jacobo Woodrowe et Henrico Spurhawke cum aliis masons pro factura de les arches sub reliquiis. There were stairs down into the chancel from this gallery, perhaps for the conveyance of relics to the High Altar on important occasions. St. Andrew's Chapel was probably built when the gallery was widened; as previously there had been a reredos on the east side, the stone being cut away for it, and there remains a ring for a hanging lamp. There is frequent mention in the rolls of oil for the lamp.

The Cross of which we found mention in 1289 was renewed in 1297 at a cost of £9 0*s.* 8*d.*, and is described as "ultra altare." It probably occupied much the same position as the Cross at Westminster Abbey, figured in the Islip Roll. In 1304 it is said to be "in the chancel." This detail was mentioned on



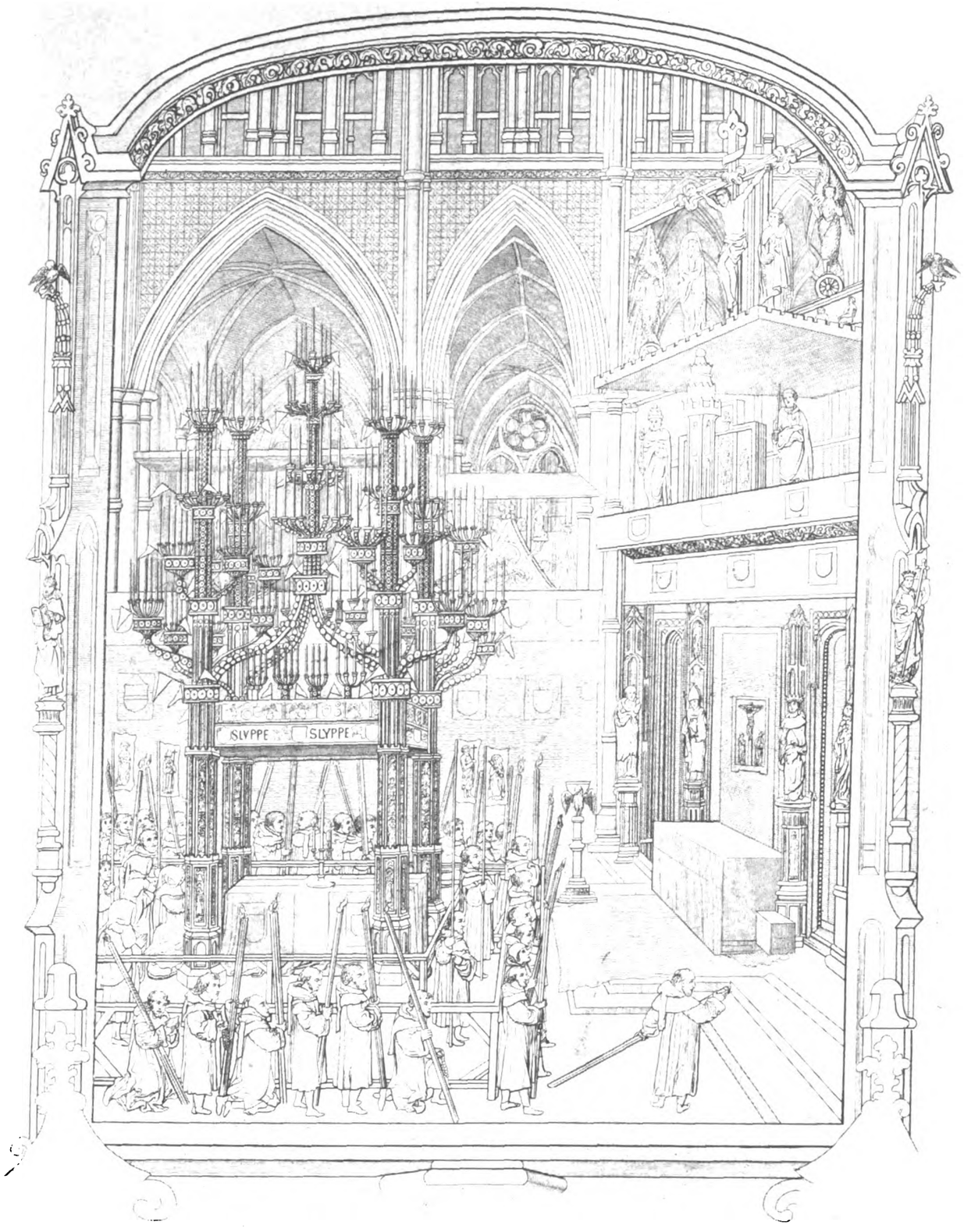
RELIC GALLERY IN NORTH AISLE OF PRESBYTERY, NORWICH CATHEDRAL.

that occasion, because a new cross was being erected in the nave, no doubt to replace the one destroyed in the great fire, and the next year there are oblations both from "the old cross in the presbytery" and "from the new cross." The new cross never seems to have become popular, and it must have taken half a century to pay for itself—(it cost £8 13*s.* 5*d.*)—because, after the first burst of enthusiasm, which brought in 33*s.*, the offerings sink to 5*s.*, 4*s.*, 3*s.*, 2*s.*, and 1*s.* in the year. There is a very sad gap in our account rolls for twenty-one years after 1343; when they begin again in 1364 we find a third cross erected, at the altar of St. Stephen, which enjoyed in turn a short period of popular devotion. The cross in the chancel kept up its popularity till the end of the fourteenth century. The oblations ranged from £5 to £20. After 1400 they drop to about £2, and it became the custom to refer to it as the "black cross."

We come, then, to St. Hippolytus. He is the only saint besides St. William who receives oblations before the year 1325. His image probably stood in the Chapel

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of the Martyrs. As in all England, there are only two churches dedicated to the saint—one in Hertfordshire and one in Dorset—it seems strange at first that in Norwich he should be so exclusively honoured. The explanation must lie in the only tradition of this ante-Nicene father which had reached England. In Norden's "Guide to Travellers" (1625) we are informed, in regard to the church in Hertfordshire, that the saint "was in his lifetime a great tamer of colts, and as good as a horse-leech; and for these qualities was devoutly honoured after his death, as all passengers by that way on horseback thought themselves bound to bring their steeds into the church, even up to the high altar, where this holy horseman was enshrined."* I imagine, therefore, that our ancient horse fair in Norwich determined the choice of this saint, and the conjecture is confirmed by the fact that when an image to St. Eligius or St. Loy, the patron saint of farriers, appears in the Cathedral, Hippolytus drops out.



HIGH ALTAR OF WESTMINSTER ABBEY, SHOWING THE ROOD AND IMAGES OF SAINTS (FROM THE ISLIP ROLL).

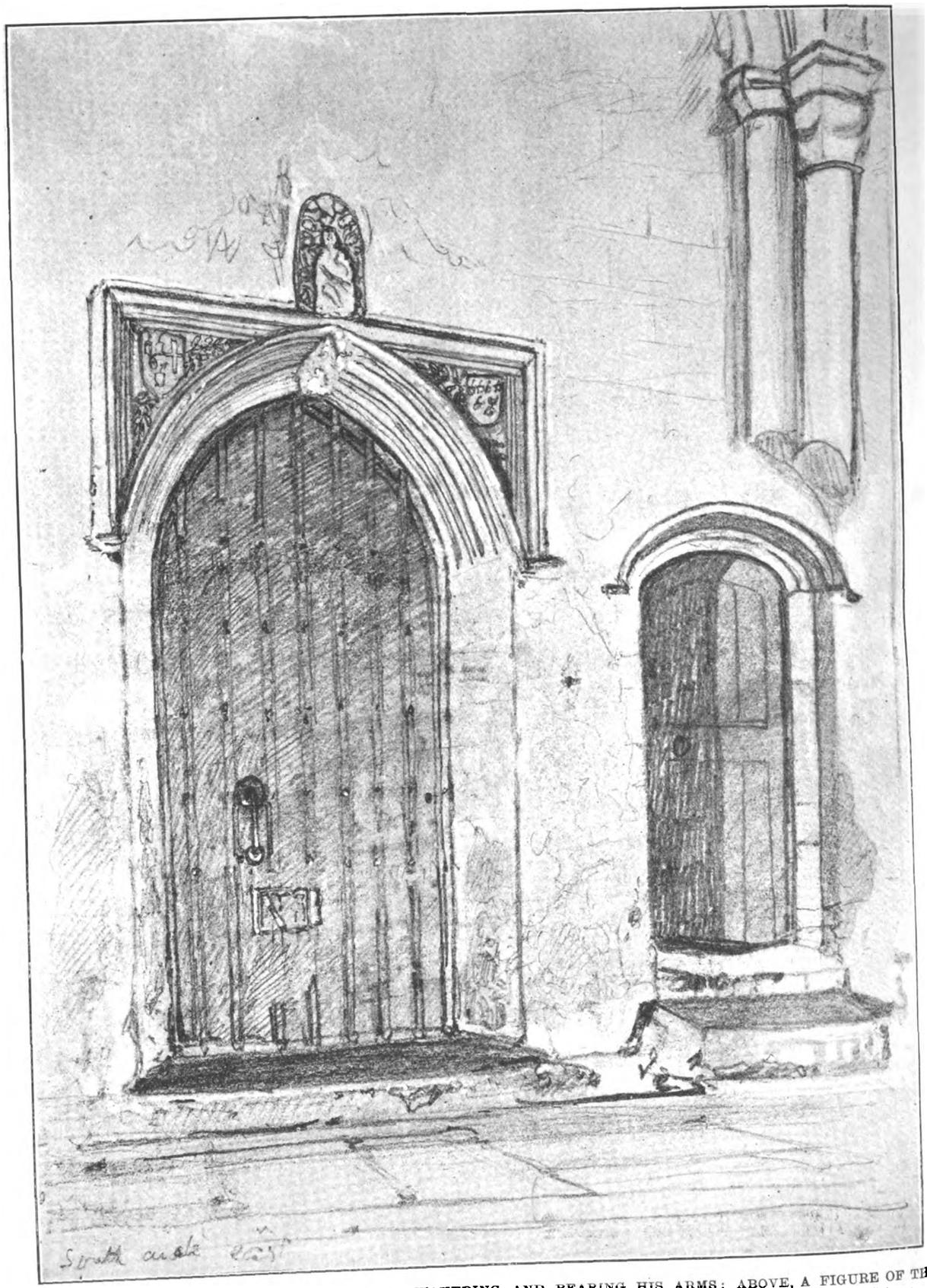
The next saints to join Hippolytus in the Cathedral

* "Studies in Church Dedications," by F. Arnold Forster, i. 213.

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were St. Stephen in 1325, and St. Anne in 1331. Of these I have already spoken in connection with their chapels. St. Stephen probably came in as the patron saint of weavers. The worsted-weavers of Norwich, even

Catharine. Of these St. Sythe or St. Zita was much the most generally popular.* She was an Italian saint, who became commemorated as the ideal servant-maid, or housekeeper, and as such was represented holding a



DOORWAY, NOW DESTROYED, BUILT BY BISHOP WAKERING AND BEARING HIS ARMS; ABOVE, A FIGURE OF THE BLESSED VIRGIN.—From a drawing made before 1850 by Mrs. HENRY SYMONDS, née Thurlow, probably under the direction of Cotman.

before the foundation of their guild, seem to have made offerings at his altar. We find in 1417 "De oblationibus gilde textorum et St. Stephani, 5/2." In 1364, after the twenty years' gap of which I spoke, we find oblations from three new saints, St. Sythe, St. Laud, and St.

bunch of keys. (You find her thus figured on the screen at Barton Turf.) She was appealed to as a mediæval lost

* Her day was April 27. She is sometimes confused with St. Osyth, Queen and Abbess, who was commemorated on October 7.

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property office, especially for lost keys; and such is human carelessness that her annual oblations amounted to a very handsome sum. We have once (1398) a mention of new paving for her chapel, but its site is not known.

St. Laud or Loe was also very popular here; but neither his life nor his death affords any clue to that popularity. He was a bishop of Coutance, of whom hardly anything is known, but the general councils he attended. He seems to have had a passion for general councils. The story went, indeed, that he was miraculously indicated as bishop at the age of twelve, and there is one miracle recorded in the Acta Sanctorum which took place at a translation of his relics. But there was nothing in this to arouse enthusiasm in East Anglia. What we want to know is what he was expected to do in exchange for the good money offered at his shrine. For I don't find that Norfolk people spent their alms for purely sentimental reasons. The answer is that he was invoked against fires, and so was the mediæval forerunner of our Norfolk Fire Insurance Society. St. Catharine, our third new arrival in 1364, was a patroness of learning, and was not understood to cure anything but ignorance. In a typical year while St. Sithe gets £1 8*s.* 8*d.* and St. Laud £1 0*s.* 8*d.*, St. Catharine has only 4½*d.*, and in only two years did she get as much as two shillings. (Her image cost 20*s.*) But there is one compensation in our treatment of her. She appears with St. Margaret in the beautiful painting on the vault of the relic chapel. Then in 1510 a curious thing happens; our old St. Catharine disappears and her place is taken by St. Catharine of Siena, but she proved no more attractive than her namesake. Once she attained to 4½*d.*, but her usual oblations amount in the year to 1½*d.*

There is a second large gap in our account rolls from 1369 to 1386; when they begin again we find these further saints, St. Richard, St. Leger, St. Theobald, St. Petronilla, and two years later they are joined by St. Apollonia and St. Antony. Some of these were generally popular for quite obvious reasons. St Leger whose eyes were bored out with gimlets was regarded as a celestial oculist, just as Apollonia, whose teeth were extracted with pincers, was held to be a celestial dentist. St. Petronilla or Parnel was invoked against fever. St. Theobald or Tibbald had a more general reputation for cures. There was an image of him at Great Hautbois, known as St. Tibbald of Hobbies, to which pilgrimages were made. St. Antony had been the patron saint of the English merchants trading from Alexandria, and was adopted by the Grocers' Company. He was also invoked against inflammations. St. Richard, I feel sure, must, like St. Catharine, have been installed here on his own merits; in consequence his oblations also are negligible. "Nil hoc anno" is the usual account of them. He also is painted on the vault of the relic gallery.

We have now come nearly to the end of our list. In 1414 two more images were erected, to St. Gacian and St. John of Bridlington, an odd combination, the first Bishop of Tours, who died in 301, and a Yorkshire canon, who died more than a thousand years later (1379); but they are always coupled together in our accounts; and perhaps their altar stood just east of St. Luke's Chapel, where there are still marks where two brackets have been. The bracket of St. John of Bridlington was discovered during some excavations in the nave in the year 1899. St. Gacian was invoked, as Bishop Bale tells us, "for lost thrift," *i.e.*, for lost savings; and St. John of Bridlington for fever and gout. Their images cost 26*s.* 8*d.* for making, 4*s.* 6*d.* for the stone, and 8*s.* 10*d.* for painting; 40*s.* in all, that is a pound apiece. In 1417 we have St. Eligius, or Loy, patron of goldsmiths and farriers; of whom Sir Thomas More complained that the people of his day "made a horse-leech"; and in 1427 we find the very large sum of 117*s.* paid for making and painting and decorating with precious stones an image of St. Thomas the Martyr, towards which a certain John Crispyn contributes 11*s.* The only oblation to that saint recorded in our extant rolls is an odd 1½*d.* in the year 1441. St. Thomas of Canterbury, then, like St. Richard of Chichester and St. Catharine of Alexandria, were honoured here for their merits; and it is a relief to us to find that our ancestors had some saints whom they valued for what they were, and not only for what they hoped to get from them. St. Thomas' altar was probably in the south portion of the space under the organ screen; the northern chapel being that of Our Lady of Pity.

Beside these altars, with their crosses and images, there were certain other objects of devotion in the Cathedral, which I will briefly mention.

First and chief, there were three representations of the Holy Trinity, which stood in tabernacles, one—a great one—by the high altar on the south side, and smaller ones by the red door of the Presbytery (the north door) and by St. William's altar in the nave. The large image, made of silver gilt, and of great value, was given by Bishop Bateman (1343-56). He also gave one of the other two. In 1439 the Trinity at the red door was renewed at a cost of 18*s.* 8*d.* Many gifts were given to the Trinity at the high altar. In 1443 Robt. Norwich, Esq., gave it his silver collar given him by the Emperor, and in 1499 Lady Margaret Shelton gave a gold chain weighing 8 oz. with a red enamelled rose hanging therefrom.* We have entries of various items of expense for cleaning their crowns, making shoes, &c.

The other interesting object of devotion was a representation of the Three Kings. The first mention of it comes in 1440, when the oblations were 10*s.* 4¼*l.* They average about 5*s.* a year. In 1513 there is an entry which enables us to fix their position; it is the cost of cloths "for the three kings at the high altar." We may conjecture that as the image of the Trinity stood on the south side of the altar, the Three Kings were at the north. As a ladder was provided for visiting the Three Kings (1510), we may presume that they and the images of the Trinity were on a loft above the High Altar, and the rood, with St. Mary and St. John on a higher loft, probably flanked by "archangels" (1369); the arrangement being similar to that at Westminster Abbey as shown in the Islip Roll.

ART IN LONDON.

War Cartoons of Louis Raemaekers.

Since the commencement of the disastrous international war there have been many exhibitions of the productions of cartoonists, whose powers of pictorial satire have been employed to help bring home to the peoples of the world the hellish nature of the present cataclysm.

We have no desire or intent to exalt M. Raemaekers at the expense of other cartoonists—men who have done much good work, each in his own way. Let it suffice that the work of the Dutchman is second to none; and in this collection of some one hundred and fifty sketches on the walls of the Fine Art Society most rank in the first class, and we think that none are to be passed by without appreciative regard. For dramatic effect two or three stand pre-eminent. "From Liége to Aix-la-Chapelle" shows a railway transport truck on the rails on its passage to Germany, bearing its load of wounded. Amidst the blackness, the inky blackness, appears a pool of red on the footboard and red oozing forth from the crevices of the doors—the turgid blood of those who are the victims of a militarism which turns men into machines of destruction and monsters of bestiality and rapine. Again, there is "The Yser," where to the dramatic effect of the corpses floating, drifting slowly and languidly en route for Calais, is superadded the artistic touch of landscape art. And, once again, "The Katwyk Murder" is here symbolised by an ambush assassin stabbing a girl wayfarer. Dramatic, with a touch of pathos, is "The Awakening," showing the eternally damned Kaiser rousing himself from slumber as the footman brings his breakfast to him in bed—"I had such a delightful dream

* Blomefield, iv. 26.

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that the whole thing was not true "—and in the Imperial maniac's eyes is a look which it takes an artist to depict, a writer like Barrie to visualise. "The Zeppelin Triumph," "To the Crematorium," "The Gas Fiend," "The Marshes of Pinsk," "To the End"—all these are noteworthy; but ranking with those earlier described is "To your Health, Civilisation"—Death in a grey robe against a black background.

There is, too, the sense of humour highly developed; "A New Version of an Old Game," "Dr. Kuyper to Germany," "The Self-satisfied Burgher," "Oranje Boven," "The Dutch Junkers," and many others instance this sense. M. Raemaekers depicts his scorn of the attitude taken up by his own countrymen. In "The New Dutch Oil Line" there is a rare dig at England, but one that is well deserved. "The Adoration of the Magi" is a fine piece of satire, most peculiarly appropriate for notice at this season. But "The Great Surprise" is one of those lofty imaginings of humour that now and again flash across the horizon of cartoonist art, though in the pages of "Punch" we obtain more than occasional glimpses of it. M. Raemaekers shows the besotted Kaiser as Moses II. leading the Germans through the Channel to England. It is altogether a fine display of cartoons, where it seems a slight to so much fine work to particularise as we have. But the public will judge for itself.

AT THE LEICESTER GALLERIES.

M. EDMUND DULAC is once again to be seen in illustration on the walls of the Leicester Galleries, after an interval of two years. The lapse of time was not required for the purpose of reviving an interest in his work, for such interest is necessarily assured. On this occasion the sources of his inspired productions are "The Arabian Nights' Entertainments" and Carmen Silva's fairy-tales; let us consider, firstly, what he has made of the Queen of Roumania's stories—or, rather, her story "The Dreamer of Dreams." These seven water-colour drawings, though not showing the artist at his best, have manifestly good qualities; and in some of them there is a most appropriate dream-like imagining of objects and scenery, Nos. 8 and 10 being particularly noticeable for their colour and their pictorial effect. In the illustrations for the "Nights," our favourite Abu-l-Hasan ("The Sleeper Awakened") is shown in five drawings, and here we specially commend Nos. 14 and 15; the humour of the former is not forced, and the artistic qualities are high. It seems, however, unnecessary to individualise, for in general the work is of such high quality, and the sense of environment so alluring. But, frankly, we do not admire M. Dulac in caricature (vide Nos. 32-36). Ne sutor ultra crepidam!

At the same Galleries, and at the same time, the sixth exhibition of the Senefelder Club for the advancement of artistic lithography is being held. Twenty-two practitioners are represented in a series of 112 drawings; the value of the work is unequal, though much of it is good and some of it fine. Particular attention is due to M. Jan Poortenaar's "Cranes" and "St. Paul's Cathedral"; Miss K. Richardson's "Lisbeth" (which is lithography of a high order, and is reminiscent in the style of Whistler's portrait of his mother); Mr. J. W. West's "Lago Piano"; Mr. Oliver Hall's "Bridgnorth from the East Side"; Mr. Strang's "The Mother" (we recall his oil-painting of this, with its Titian-like qualities); and Mr. Mullgardt's two works. There is plenty other good work, contributed by Messrs. Hartrick, Joseph Pennell (the President), Blatherwick, A. R. Barker, Veresmith, and Miss Stella Langdale; it is an exhibition, in fine, that proves very attractive, both in its technical qualities and its artistic value.

We reproduce amongst our inset illustrations M. Jan Poortenaar's lithograph of "St. Paul's Cathedral," and Mr. Mullgardt's "Carmel Mission, California."

MRS. MARY F. RAPHAEL AT HOME.

AT her studio at No. 2 Hanover Terrace, Regent's Park, the talented artist, Mrs. Mary F. Raphael, has just been exhibiting a series of oil studies and drawings. As in so many other cases at this day, the opportunity has been taken to divert into some one of the many channels opened by the war the proceeds of the sales effected. In the present instance the sum received has been devoted in its entirety to St. Dunstan's Hostel (Regent's Park) for blinded soldiers and sailors. Mr. C. Arthur Pearson, to the fore wherever he becomes cognisant of victims to the physical infirmity from which he is a sufferer, is the President of this Hostel.

The cause attracted the sympathetic interest of H.M. Queen Alexandra; and though we do not always associate royal patronage of art with artistic discrimination, in the present instance we find that the Queen made selection of one of the eight best exhibits out of some seventy sketches; "Rhododendrons, Sunset," was the subject of the sketch. H.R.H. Princess Victoria was also the purchaser of a drawing ("A Love Letter"), and the combined influence of the cause and the artistic merits had effected a large number of sales, even before our visit. Mrs. Raphael's work holds a middle place between the smooth finish of an earlier school and the pseudo-impressionistic daubs beloved of certain art maniacs. The quality of breadth is very much in evidence, more so by far than that of atmosphere; the latter it is impossible to define, but one is at once conscious when a picture possesses it. Perhaps it is most associated with a sense of luminosity, such as we noticed in "The River, Llanwrtyd." We have not space to devote to as detailed a written appreciation as we should like, but we must specifically refer to the very good work shown in "The River Adige," "The Inn Yard, Vernon," "Hide and Seek," "The Apple Tree," and "The Blue Gate, Isle of Wight"; the "Inn Yard" and "The River, Llanwrtyd," were still amongst the unsold at the time of our inspection. Doubtless they have since met with purchasers; but in their case and others it is to be pointed out that the virtue of acquired possession is not its own reward, but brings the reward in its train.

BRITISH SCHOOL AT ROME.

THE annual meeting of the British School at Rome was held in the Apartment of the Society of Antiquaries, Burlington House, W., on Tuesday, the 7th inst.

From the fifteenth annual report on the work for 1914-15 we take the following information.

The War has naturally caused a great diminution in the number of students and associates attending the School, and they only numbered fourteen. Several of this year's students, and others who were actually elected to School studentships are now serving in the Army, but it is hoped that they will take up their work in Rome after the War.

No open meetings were held this year, and the lectures given by the Director and Assistant Director were confined to the students and associates of the School.

The Staff.—The Director, Dr. Thomas Ashby, visited Australia with the British Association in the summer of 1914, and read two papers. He also addressed meetings at Perth, Adelaide, Melbourne, Sydney and Brisbane on the School and its aims, and the additional advantages which it will, under its enlarged form, be able to offer to students. Dr. Ashby reached Rome on November 1, where he remained until the end of April. During the winter he was occupied with the continuation of his work on the aqueducts, the levelling of which, by Prof. V. Reina and Ing. G. Ducci, of the School of Engineering in Rome, has now been completed. He also prepared the text to a forthcoming publication by the Roxburghe Club of an important series of views of Rome, with a fragmentary text, by Etienne Du Pérac (*circa* 1581), now in the library of Mr. C. W. Dyson Perrins; and he published in the *Bibliofilia* of Florence two bibliographical articles on the various editions of two sixteenth-century illustrated works on Rome—the *Libro appartenente a l'Architettura* of Antonio Labacco, and the *Vestigi dell'*

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Antichità di Roma of Etienne Du Pérac. Early in August he joined the British Ambulance unit for Italy.

The Assistant Director, Mrs. Arthur Strong, has been specially busy on the Conservatoire Catalogue.

The Students.—In the list reference is made to the work of students of the Faculties of Painting, Sculpture and Architecture, on the ground that their headquarters in Rome during the past year were still the premises of the Faculty of Archæology, History and Letters at the Odescalchi Palace.

Mr. J. Boxwell, Scholar of Trinity College, Dublin, B.A., of the University of Cape Colony, who was the holder of a Travelling Scholarship from the Union of South Africa, spent October and November of 1914 in Rome and Naples, studying the classical topography of those cities and of their neighbourhoods, and taking a number of photographs in the museums.

Mr. H. Charlton Bradshaw remained in England until April 1915, by special permission of the Faculty of Architecture, in order to complete the drawings for the laying out of the Walton Park Estate for the Corporation of Liverpool. He has been working at a restoration of the terracotta decorations of one of the temples at Civita Castellana (Falerii Veteres) in collaboration with Miss M. Taylor, who is writing the descriptive text to accompany Mr. Bradshaw's drawings. He intends to complete the restoration of the Temple of Fortune at Palestrina, which was commenced by Mr. Prestwich. He has also done some drawings of the Villa Giulia, and of the classical details in the Forum. He has now obtained a commission in the Army.

Mr. Ernest Cormier, the second Jarvis Scholar to be appointed by the Royal Institute of British Architects, arrived in Rome early in January, and was occupied in making a series of measured drawings of the Villa Madama.

Mr. Colin Gill, the first Scholar to be appointed by the Faculty of Painting, left Rome almost immediately after his return from Anticoli Corrado (where he was painting during the summer), to join the Army.

Mr. P. Hepworth, the second of the scholars to be appointed by the Faculty of Architecture, spent November and December in a tour through France and Northern Italy with Mr. de Soissons. He made large measured drawings of some of the Genoese palaces, and studies of modern churches, which took up the whole of his time for three months after his return to Rome. He then paid a visit to Pompeii, devoting special attention to the study of mural decoration and ancient baths in preparation for more detailed work on the Thermae of Caracalla. He, too, is now serving in the Army.

Mr. V. S. Rees Poole, member of the Transvaal Institute of Architects, arrived in Rome at the beginning of 1915, and remained there until the middle of June, making architectural studies of a general character. He paid a visit to Pompeii, and worked there for a fortnight on the planning of the town and its colour decoration.

Mr. L. de Soissons, the first Jarvis Scholar to be appointed by the Royal Institute of British Architects, spent November and December in a tour through France and Northern Italy, in the company of Mr. Hepworth. The next few months after his return to Rome were spent in making measured drawings from his notes of palaces and other buildings. At the end of May he also proceeded to England to join the Army.

Miss M. N. L. Taylor, of Newnham College, Cambridge, holder of the Gilchrist Studentship, continued her work on the terracottas from Falerii in the Museo di Villa Giulia, and especially on those of the temple in the Contrada Lo Scasato, which belongs to the Hellenistic period. She has prepared a description of them, together with a conjectural restoration—the latter in collaboration with Mr. Bradshaw.

Excavations in Malta.—The Director spent a week in Malta in October, 1914, when he excavated a small megalithic building of the Neolithic period at Debdieba, near Mkabba, in the centre of the island; and he returned for three weeks in May, 1915. He then completed the excavation of a megalithic sanctuary (which had been begun by Dr. Laferla in December, 1914) at Xorb il Ghargin, on the south-east coast, both this and the former excavation being carried on at the expense of the Maltese Government. He also explored two rock fissures near Mkabba, in one of which were found bones of animals of the Pleiocene period, the cost being defrayed from a grant by the British Association for the Advancement of Science.

The New Building.—The new school building, which is now approaching completion in the Valle Giulia, is under the control of the Executive Committee, and has been built by them from funds at their disposal. In the course of the summer it was intimated to the Committee of the Faculty that the funds available were insufficient to complete the fitting and furnishing of the library, according to the designs of the architect. The Committee, however, felt that it was an urgent matter that the new library should be ready for occupation and use from the outset, whenever the school building should be finished. They therefore offered to advance the money required for the gallery, and to contribute their bookcases from the Odescalchi Palace, together with the necessary refitting, and with some new cases to allow for expansion. It was proposed to meet this expenditure, and the cost of moving the library (estimated to amount to about £250 in all), from the reserve on deposit at the bank. The arrangements made are admittedly provisional, but it is hoped that they will be sufficient for the effective use of the library for some years to come.

It is not possible at present to make any statement as to the date at which the new building will be opened. The state of war both in England and Italy, the shortage of labour, and the difficulties of transport have caused grave delays at every turn, and a necessary part of the equipment has been lost at sea in a torpedoed steamer. These obstacles (in combination with other causes tending to delay the completion of a considerable building) have made it necessary to suspend the work of the school for a time, since the Faculty were obliged to vacate the Palazzo Odescalchi before the end of July. There is a strong hope that if no unforeseen hindrance arises in connection with the war, the work of the Faculty can be resumed in the new building at the beginning of January.

Finance.—The subscriptions for the year amount to £604, compared with £728 last year, which was the best on record. A serious drop in the subscriptions was inevitable.

The Government Grant was £500, as before. This is the last time that it will appear in the accounts of the Faculty. With the move from the Odescalchi Palace to the Valle Giulia, the Executive Committee begin to administer the grant, and become responsible for the Director's salary, while the Faculty is at the same time freed from rent and other establishment charges. H.M. Government have agreed to the renewal of the grant for a further term of five years.

NOTES ON THE FIRST REPORT OF THE HOME OFFICE COMMITTEE ON LIGHTING IN FACTORIES AND WORKSHOPS.*

By LEON GASTER.

THE issue of the report in September last is the culmination of a great deal of steady work on the hygienic aspects of lighting which has been done during the last few years. It would take too long to enter into the history of this movement fully, but those interested will find a summary in the editorial in "The Illuminating Engineer," the official organ of the Society, for September. The appointment of the Committee was not in

* Abstract of an introduction to a discussion by the Illuminating Engineering Society, which took place at the house of the Royal Society of Arts on November 23.

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any sense a sudden decision, but the result of years of methodical work. The history of our movement has shown that the best results are obtained by persistent and steady effort and by the patient education of public opinion; and that it is invariably unwise to try to rush through things quickly in the teeth of misunderstanding and strong opposition. The most stable organisations are of slow growth.

The work of our Society since its foundation in 1909 has brought about a great change in the public standpoint in matters of illumination. Ten years ago little appeared in the press on lighting matters, and such articles as were published usually dealt exclusively with the comparative cost of rival systems of illumination. It has been part of our work to raise other important issues of common interest to representatives of all illuminants, to encourage people not to think only of their expenditure on lighting, but to recognise that lighting is always uneconomical unless it carries out the purpose in view. In particular, our Society can take credit for having done much to establish the value of good illumination in the interests of health, and as a practical necessity for the carrying out of work in safety and comfort.

Naturally, this aspect of lighting has been largely responsible for the appointment of the Committee. The need for it was justified by investigations carried out by the Factory Department of the Home Office for several years, much of which has appeared in the annual reports issued by the Chief Inspector. In addition, the hygienic aspects of lighting in relation to industry were prominently brought forward at two most important recent international congresses, the Congrès International des Maladies Professionnelles, held in Brussels in 1910, and the First International Congress for the Prevention of Industrial Accidents, held in Milan in 1912. Shortly after the Brussels Congress a Committee with similar functions to our Departmental Committee was appointed by the French Government, and the American Illuminating Society has also been active in studying the subject and in encouraging appropriate legislation on the part of the various States.

The outstanding fact by which our Committee was faced was the absence of any general provisions in respect of lighting, analogous to those regarding temperature and ventilation, in the Factory Acts of the United Kingdom.

One of the most valuable sections of the report is that in which a summary is made of the legislation bearing on industrial and school lighting in the chief European countries and in the United States of America. Many of these regulations were introduced a number of years ago; in most cases these are of a very general character, and in the light of the experience acquired during the last few years it is now possible to aim at greater precision in the definition of terms used (such as the meaning of "adequate and suitable lighting"). There is a general recognition that illumination cannot be satisfactorily dealt with by engineers alone, but that the co-operation of other experts, physiologists and architects, physicists and the general public is needed. The French Government, in forming their Committee in 1911, took care to secure the services of these various experts. The Departmental Committee includes among its members physicists, physiologists and engineers, and in receiving evidence every effort was made to secure representative views from architects, managers of factories, employers and employees.

The result has been a unique publication of which this country has reason to be proud. It is no exaggeration to say that in no other country has there been any Government publication on industrial lighting which can compare in respect of completeness and the amount of work done. At the present time such an investigation is a necessary preliminary to legislation. In most other countries enactments on lighting have been the work of a Government official, sometimes acting on the advice of engineering experts, and in these circumstances it was naturally only possible to deal with the subject in the briefest and most general manner.

From the standpoint of the Illuminating Engineering Society it may be suggested that the chief points of interest in the report are:—

1. The recommendation that there should be statutory power to demand adequate and suitable lighting in factories and workshops.

2. The recognition of the value of good illumination as desirable in the interest of the safety and general health of workers, and as an important factor influencing the output and quality of work.

3. The actual record of work done contained in the appendices comprising data and measurements obtained in many factories, supplemented by the general impressions of the observers; and the summary of the requirements as regards lighting in the chief European countries and the United States.

It should be particularly noted that "adequate and suitable lighting" is defined, not as involving only the provision of a certain amount of illumination, but also as implying satisfactory conditions in regard to the avoidance of glare, inconvenient shadows, &c. The recommendations of this Committee are unique in that they are the result not only of evidence tendered by a very varied set of witnesses, but of personal experience and a very exhaustive series of tests undertaken by the Committee. Some idea of the work entailed may be gathered from the data so far published, but it should be remembered that there is still another volume to come, which will contain a detailed account of the lighting conditions in each factory visited, the measurements of illumination, and the personal impressions of the Committee thereon. These data should certainly be of considerable value as showing the actual conditions of illumination prevailing in the classes of factories visited.

Besides its manifest utility to the general public the report should be much appreciated by the definite and official recognition of the importance of lighting, which should be of great value to all who are engaged in working for the improvement of industrial illumination.

With a view to ascertaining possible points for discussion I have taken some pains to examine the comments on the report in various journals interested in lighting matters. It is evident that the value of the report is appreciated in a great variety of papers dealing respectively with engineering hygienic and architectural matters. [This list includes, among others, the following:—"American Gaslight Journal," "Architect," "Electrician," "Electrical Engineering," "Electrical Industries," "Electrical Review," "Electrical Times," "Engineer," "Engineering," "Gas Engineer's Magazine," "Gas World," "Hardwareman," "Illustrated Carpenter and Builder," "Journal of Gaslighting," "Lancet," "Sanitary Record," "Times Engineering Supplement."] I would like to draw attention to one enterprising step taken in the issue of the report—namely, the publication of a four-page memorandum, summarising the chief points of interest and giving the essence of the material contained therein. An abstract of this kind is a great aid to journalists when reviewing a bulky Government Blue Book, and it is also desirable in the interest of the department by whom the report is issued as it ensures that the chief objects of the publications are not lost sight of in a mass of detail. It is interesting to see that most of the journals that have commented on the report have made use of this memorandum. It supplies a much-needed bridge between highly technical but valuable official information and the general public.

Anyone reading the report must be struck by the special pains taken by the Committee to render its contents easily understood, and to make it clear that its provisions are presented as a service to the public, and not in any sense as a hardship to manufacturers. A perusal of the evidence will also show that the Committee have been most anxious to hear the views of all those interested in various aspects of illumination, and that they have lent a willing ear to suggestions.

The reception of the report in the press has been, almost without exception, friendly, and in the one case

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in which its contents have clearly been misinterpreted and under-valued, it is not difficult to trace the motives of the writer.

In dealing with some of the comments that have been made, therefore, I do so merely in order to clear up a few evident misunderstandings.

1. In a few cases it has been suggested that the report contains a needless amount of explanatory matter and even truisms in regard to illumination. On this point something has already been said. It has been pointed out that explanations which appear needless to a lighting engineer may be highly necessary to the general public, for example, to backward manufacturers who have not thought much about lighting matters. Moreover, if a statutory requirement of adequate and suitable illumination is made and penalties are eventually imposed, the precise definition of "adequate and suitable" illumination becomes an important matter; the contents of the report will form the leading guide as to what is meant by this term, and must therefore be framed to meet all such contingencies. Moreover, factory inspectors have not previously been entitled to take general action in regard to defective lighting, and they will have to proceed cautiously and to gain their own experience; for their guidance full and explicit information, even on apparently elementary points, will be very helpful.

2. A few writers, particularly those who are accustomed to deal with lighting matters, and have therefore some knowledge of the order of illumination met with in modern up-to-date factories, have been disposed to think that the minimum values suggested are too low; or to question the principles on which they are arrived at. The aim of the report is to avoid at all costs recommendations which might subsequently be found to be too burdensome, and to involve unnecessary hardship to manufacturers. When taking an entirely new departure this is always a sound principle to work upon. One has to strike a balance between what is desirable theoretically and what is practicable. The researches of physiologists have shown that in general a marked diminution of acuteness of vision begins when the range of illumination is reduced below the range of values specified in this report; yet one's impressions in this respect depend very much on the state of adaptation of the eye and the success with which glaring points of light are avoided. In any case such estimates have to be considered with respect to the conditions actually found in practice. The estimate was therefore checked by a very laborious series of measurements in many factories and the "frequency of occurrence" curves presented in the Report give a clear guide as to the values which might be expected without hardship in factories at the present time. I may say that the minimum value prescribed in factories—0.25 foot-candles—has been independently arrived at in other investigations. It is, for example, the minimum value found on the platforms of railway stations (where the safety and general convenience of passengers are the chief considerations determining the illumination), and it was independently suggested years ago as a result of investigations in the United States.

It must also be recognised that these values are not average but "practical legal minimum" values. I notice that this distinction is emphasised in the American Code on Lighting. The minimum foot-candle intensity is fixed (quite independently) at 0.25 foot-candles for storage, passages, stairways and the like, but the desirable foot-candle is placed somewhat higher—namely, 0.25—0.5 foot-candles; the latter value is not far from the actual minima met with in our investigations and recorded in the "frequency of occurrence" curves.

It need scarcely be said that with modern illuminants there is usually a considerable variation in the illumination furnished at different points in the room, so that a minimum of 0.25 foot-candles at any point means that the illumination at most other parts of the room will be very much higher.

There will occur certain cases, particularly very large rooms and open spaces, where even this value could not be obtained without an unreasonably great expense. The Committee have therefore considered such open spaces separately and fixed lower minimum values, and have also inserted an exemption clause to meet hard cases. The well-diffused illumination from a full moon in a clear sky, about 0.02 foot-candles, is regarded as a very useful degree of light for outside operations, so far as safety is concerned, so much so that in other countries where the climatic conditions are more regular street lamps have been dispensed with on moonlight nights.

3. A desire has been expressed that something more definite should be said on the subject of glare, and that a provision limiting the contrast between the illumination on the work and of surrounding parts of the workroom should be inserted. As regards the avoidance of glare I think the report is sufficiently emphatic. At the present stage it is hardly practicable to include in the body of the report hard-and-fast rules for its avoidance, as these necessarily differ so much according to the nature of the workshop; such precautions should, however, be studied by inspectors and applied by them in giving advice as to how a tendency to glare might be remedied.

As regards the avoidance of excessive contrasts in illumination, this is met by two requirements. First, by the general requirement that there should be a reasonable constancy of illumination over the working area; secondly, by the fact that the minimum general illumination is 0.25 foot-candles. According to Weber there is no impression of glare provided a contrast exceeding 100:1 in brightness is avoided; and even this ratio would perhaps be difficult to adhere to in practice. However, a ratio of 100:1, with a minimum illumination of 0·25 foot-candles, would permit of an illumination of 25 foot-candles on the work, which is only required in very exceptional cases.

4. A few critics of the report have suggested that some more definite information should be given under the heading "How to Light a Factory"; in other words, that some form of specification should be prepared stating the amount of illumination for various processes and the desirable arrangement of lamps, &c.

It is explained in the report that the specification of the illumination for the purpose of carrying out work has not yet been sufficiently studied to justify us in putting forward definite values. Those who speak light-heartedly of brief and "practicable general schemes" of factory-lighting can scarcely have studied the subject in any detail, and can have no idea of the innumerable complex factors affecting the conditions of illumination in various industries. Ideas on this subject can only become crystallised by gradual experiment and discussion in co-operation with those engaged in the respective industries, and it would certainly be foolhardy at the present moment to attempt to make such values a basis of legal action.

On the other hand, those who accept the principle of the general recommendations in the report, and supplement this by a study of the data in specific factories presented, are already in a position to make substantial improvements in the more backward factories in regard to lighting, and this is surely a great point gained. Moreover, the introduction of new methods of lighting and improved illuminants keeps the subject in a constant state of flux, and the values considered ample a few years ago are no longer accepted to-day. As an illustration I may mention that Holland, which a few years ago drafted a series of requirements for the lighting in certain industries, has recently found it necessary to double the original values.

5. I notice in one article on the report the following passage:—

"At present shop-lighting is dictated on a generous scale in every up-to-date factory, because it is clearly recognised that parsimony in this matter is false economy indeed. The lighting arrangements are not planned with the aid of a photometer, because no one can calculate beforehand how much light will be re-

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quired and how much will be obtained by any suggested arrangement."

I have indicated above the complexity of the problems determining the illumination needed for various processes, but I venture to think the above statement exaggerates the difficulties. While it is doubtless true that experience, aided by measurements of illumination to serve as a record, is needed to fix the conditions of illumination required, there is no doubt that one can form a very fair idea of what is necessary, and in some trades the requirements are already becoming fixed within practical limits. It is also a fact that the systems of lighting recommended by up-to-date firms concerned with lighting are based on photometric measurements; there is no serious difficulty in determining beforehand, quite closely enough for practical purposes, the order of illumination which will result from lamps of a certain candle-power, equipped with standard forms of reflectors and located in predetermined positions. The evidence of several witnesses quite bore out this view.

6. The statement that daylight is in general preferable to artificial light, and the advice to make the best use of daylight illumination on this account, have been regarded as a truism. If so, this is a truism that those responsible for planning admission of daylight would do well to bear in mind, for insufficient window-space is a not infrequent fault, especially in old-fashioned factories. The matter has also a special bearing on basements, and it is an arguable question whether insufficient daylight should be supplemented by artificial light, or whether daylight should be completely excluded before artificial light is used. The transition from daylight to artificial light needs careful handling, and there is ground for thinking that accidents are particularly liable to happen at this period of the day. It has even been suggested that, for reasons of health, basements which require constant artificial light should not be used as factories and workshops.

The exhaustive data on this subject contained in the report should be most useful to architects and engineers concerned with the construction of factory buildings.

CASE LAW UNDER THE FINANCE ACT.*

By E. M. KONSTAM, Barrister-at-Law.

IT will be convenient to take the principal cases decided under Part I. of the Act in the order of the Act itself; and in this way we may begin with the name of Lumsden, so inseparably connected with the increment value duty. I am quite ignorant of the motives which induced Mr. Lumsden to fight the case up to the highest court in the country, but if his object was to show the inherent injustice of this duty, that object has certainly been attained, and radical alterations in its nature have been promised in consequence of the decision in this case. Perhaps if it had not been for the war, those promises might even have been fulfilled. But let us leave the region of speculation and come to facts. The case, which is reported (1913) 1 K. B., 346; 3 K. B., 809 (1914) A. C., 877, arose upon Section 2 (2) of the Act. Land with a building upon it was given in the provisional valuation an original site value, as on April 30, 1909, of £105. The property was sold in August, 1910, for £750, subject to a tithe of £33 capital value. It was found in the case stated by the Referee that if a fresh valuation of gross value was to be made as at the time of the sale that gross value would be £658. The full site value on the earlier date was £228.

The appellant contended that, for the purpose of calculating the deductions to be made from the consideration or purchase price, which is set up by Section 2 (2) (*a*) as the standard from which the site value on the occasion of sale is to be ascertained, the price realised plus the capital value of the tithe must be taken to be the gross value as at the time of the sale. The Revenue contended that for this purpose the true gross value must be ascertained by valuation. If Mr. Lumsden was right, there would be no increment value; if the Revenue were right, the duty was leviable on an increment value of £125.

Taking all the Courts together, four of the judges were in favour of the Crown's contention, and three in favour of Mr. Lumsden's. The result was that increment value duty is leviable upon the increase in value of a composite property consisting of land and buildings, instead of on the increase in the value of the site alone; and as it has been agreed that this is a bad result from the point of view of public policy, there is little now to be gained by a discussion of the judgments delivered. But if those of the dissentient judges are read, it is difficult to avoid the conclusion that they were actuated by a desire to believe that the Legislature had not intended to enact the injustice of taxing a man on the increase in value of property due to his own exertions, and that its sole intention was to tax—justly, as some think—the unearned increment in the value of bare land. The majority of the judges on the other hand, thought—(1914) A. C., 895—"that Parliament must, on the literal construction of its language, be taken to have contemplated the possible taxation of either something more or something less than site value, strictly so-called."

The House of Lords in Inland Revenue *v.* Walker (1915) A. C., 509, followed their former decision, although the special case as stated by the Referee was perhaps rather more favourable to the appellant than that in Lumsden's case. The purchase here was made by a sitting tenant, and their Lordships held further that an additional sum of £180 included in the purchase money could not be excepted in arriving at the consideration for the purposes of the calculation under Section 2 (2) (*a*). The Referee inferred that this extra sum had been paid by the purchaser to avoid being disturbed in his occupation of the premises; and although it is true that the House thought there was not sufficient evidence to support this inference, only one of the Lords appears to have decided against the deduction of this sum of £180 on the ground that even if the reason of its being paid had been established in fact, it was inadmissible in law. Unless therefore this point is concluded by Clay's case, with which I shall deal later, it appears to be still open.

In the case of Hayllar *v.* Inland Revenue (1914) 1 K. B., 528, Parliament was held, in Section 2 (3), though it had purported to provide for a substituted site value in the case of a decline in value after a mortgage, to have enacted what was "almost illusory as a benefit to the owner." "It seems to me irrational and absurd, but the language is too strong," said the Master of the Rolls, and proceeded to hold that the amount of the actual mortgage debt must be taken as the gross value for the purpose of calculating the site value as at the time of the mortgage and of substituting that site value for the site value ascertained as on April 30, 1909. The true gross value at the date of the mortgage was, as everybody with experience of the management of land knows, probably about half as much again as the amount advanced on mortgage; and if a site value based on the true gross value could have been substituted, the owner of the land might derive some real benefit from the provisions of Section 2 (3), which are supposed to protect him from paying an excessive increment value duty in addition to suffering a depreciation of his property. As it is, the benefit enacted is "merely illusory." Did the "draftsman" intend that; or had he so little experience of transactions in land as to imagine that "the amount secured by the mortgage" generally represents the full market value? Neither alternative is creditable to "the Legislature in its wisdom."

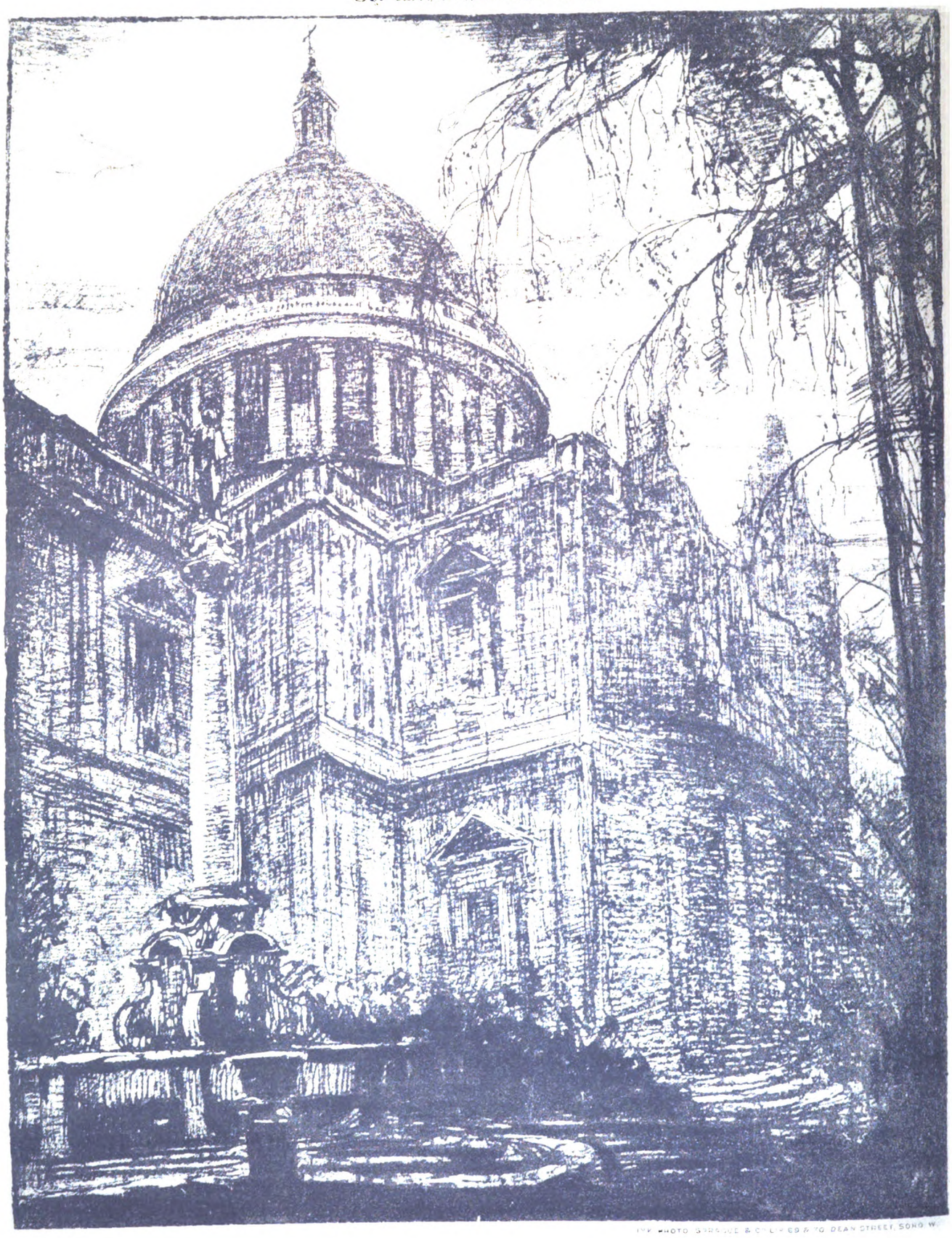
The next duty in the order of the Act is the Reversion Duty, and the leading case upon it is that of Inland Revenue *v.* Marquess Camden (1914) 1 K. B., 641; (1915) A. C., 241. In this case the Courts strained the presumption of good intention almost to breaking point in favour of the "draftsman." They held, in short, that Parliament, if it was ignorant of the practice in connection with leases of land, or if knowing that practice it desired to enact a grave injustice, had not expressed that ignorance or that intention in sufficiently clear words to be effective. The material passage from Section 13 is as follows: "The total value of the land at the time of the original grant of the lease, to be ascertained on the basis of the rent reserved and payments made in consideration of the lease (including, in cases where a nominal rent only has been reserved, the value of any covenant or undertaking to erect buildings or to expend any sums upon the property").

* Abstract of a Paper read at the ordinary general meeting of the Surveyors' Institution, held on Monday, November 22.

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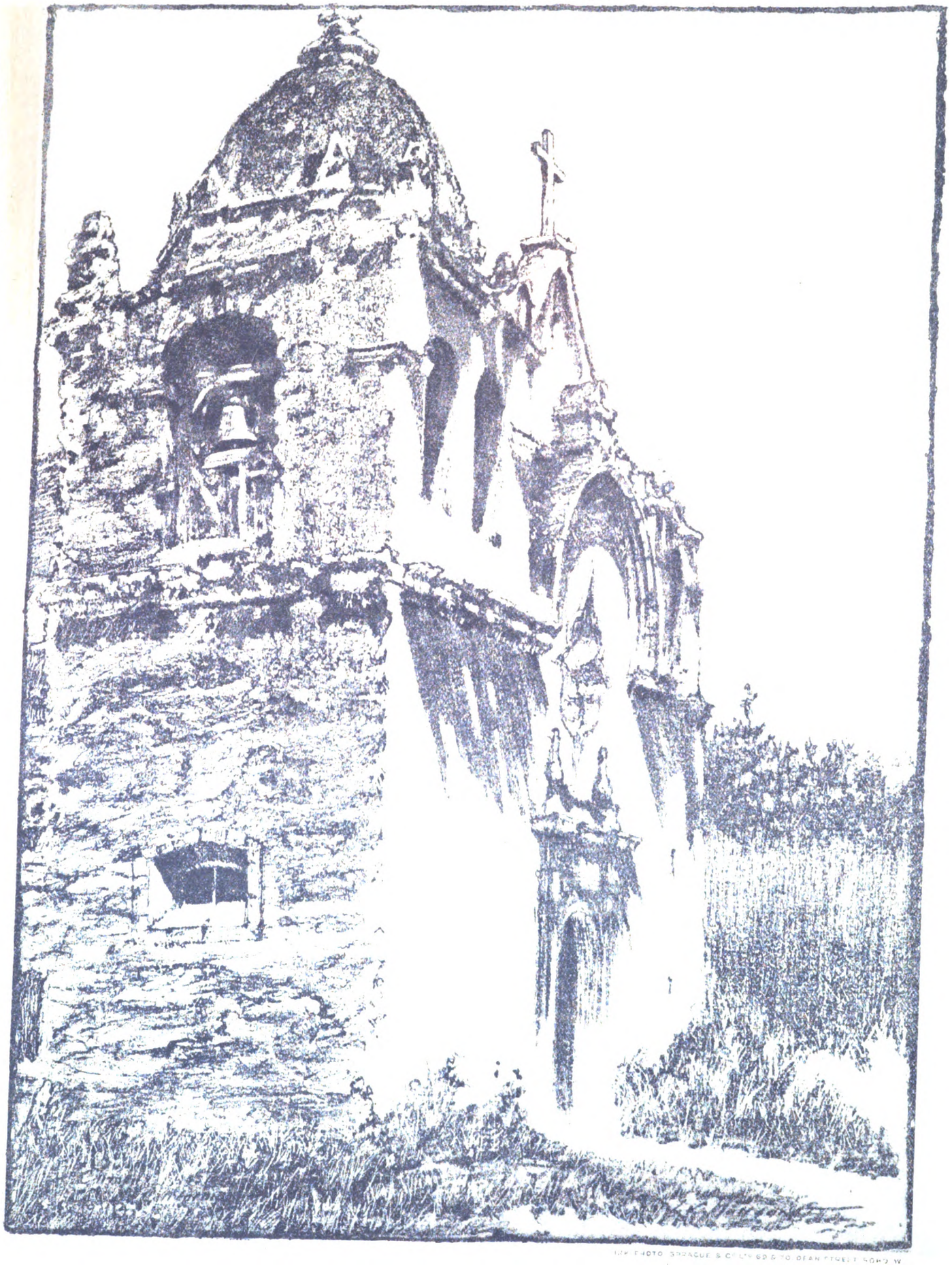
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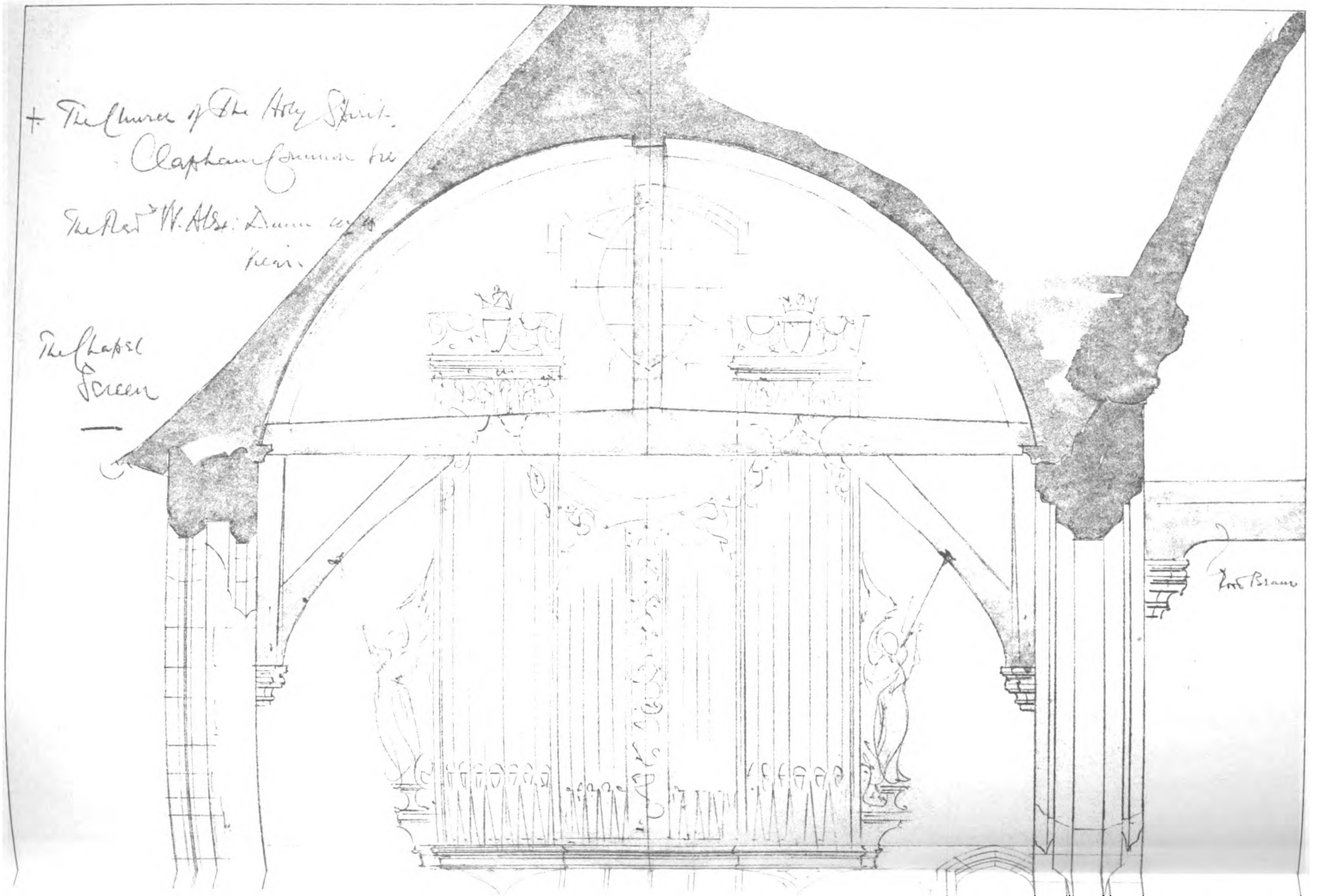
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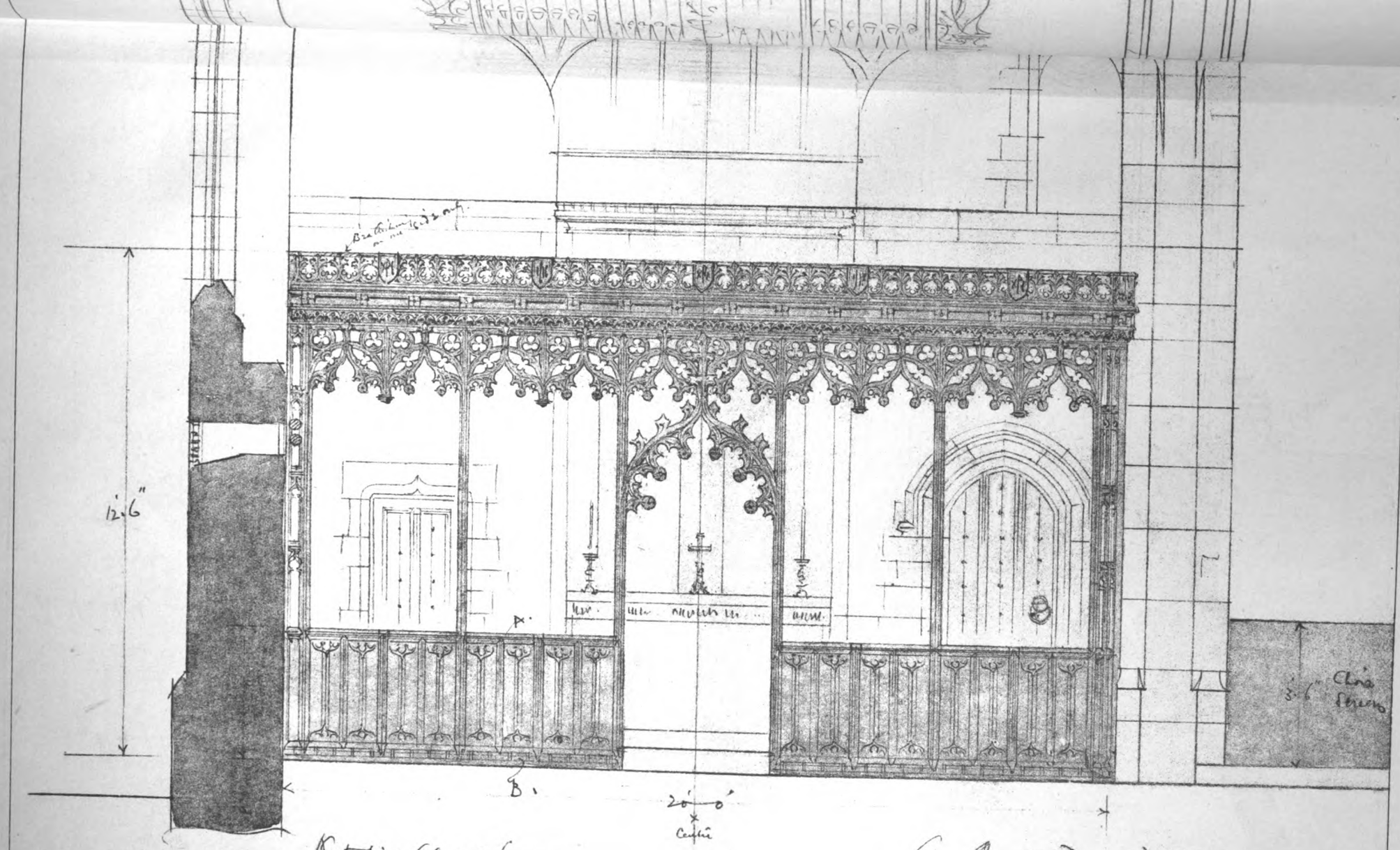
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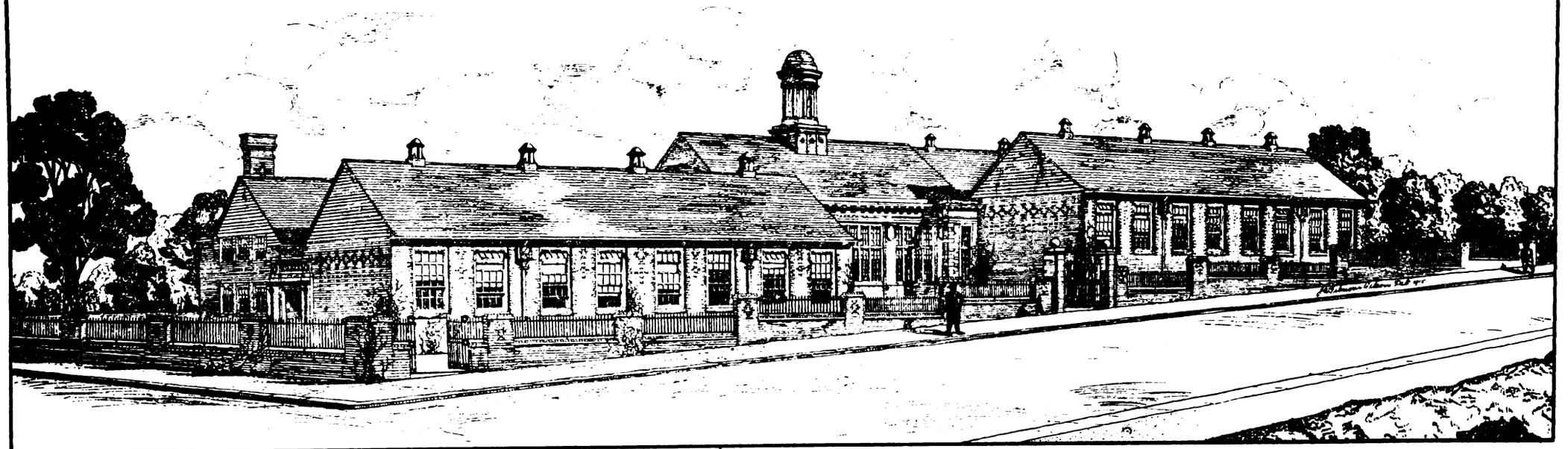
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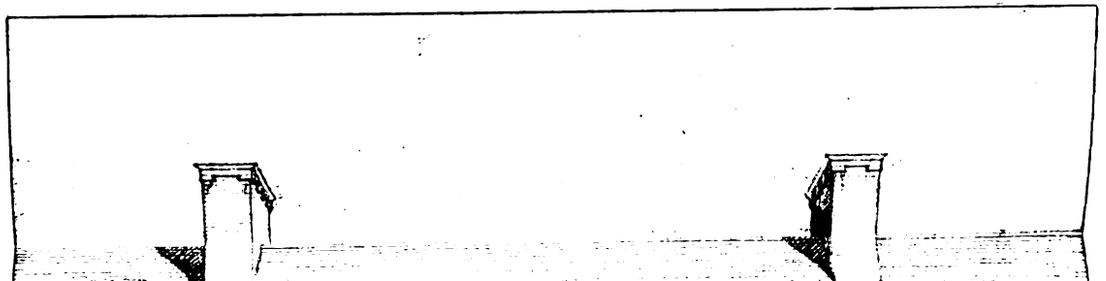
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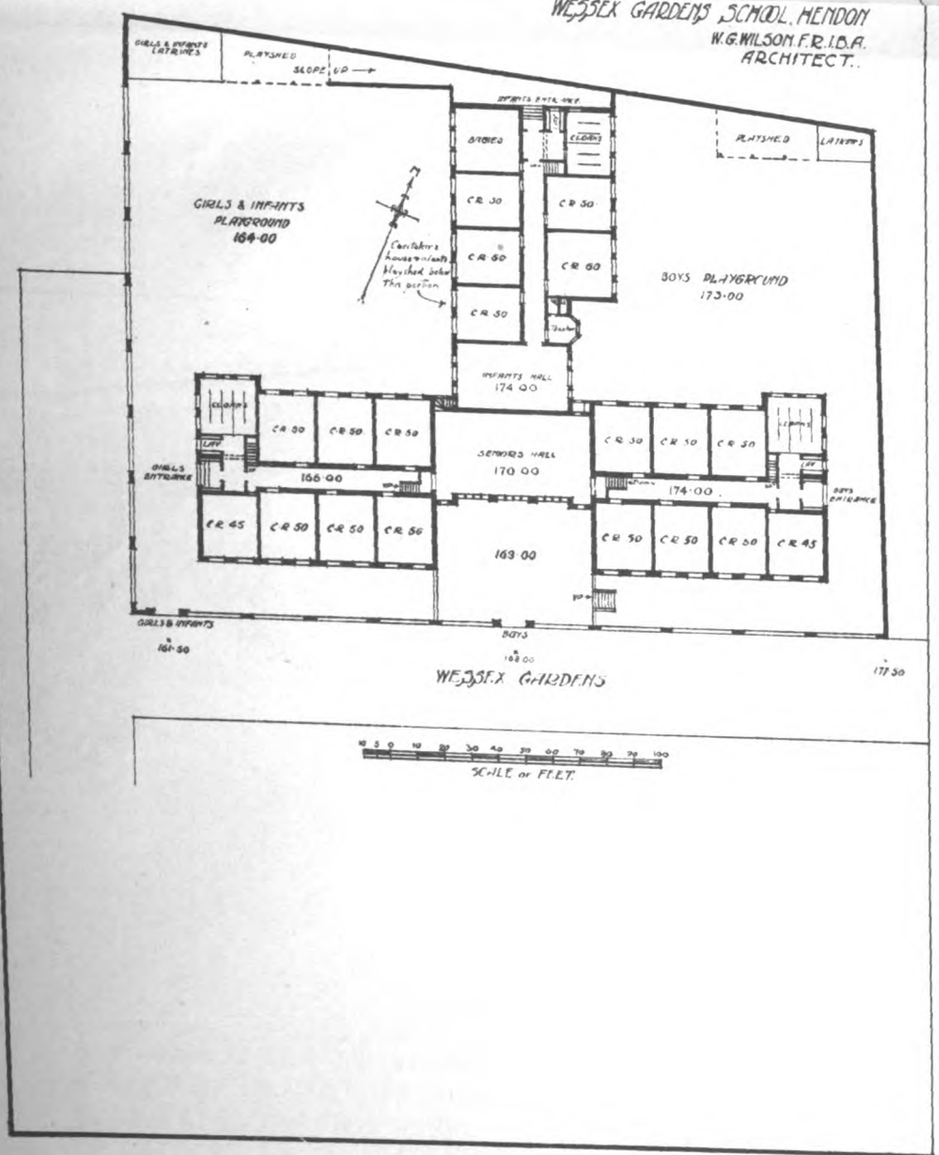
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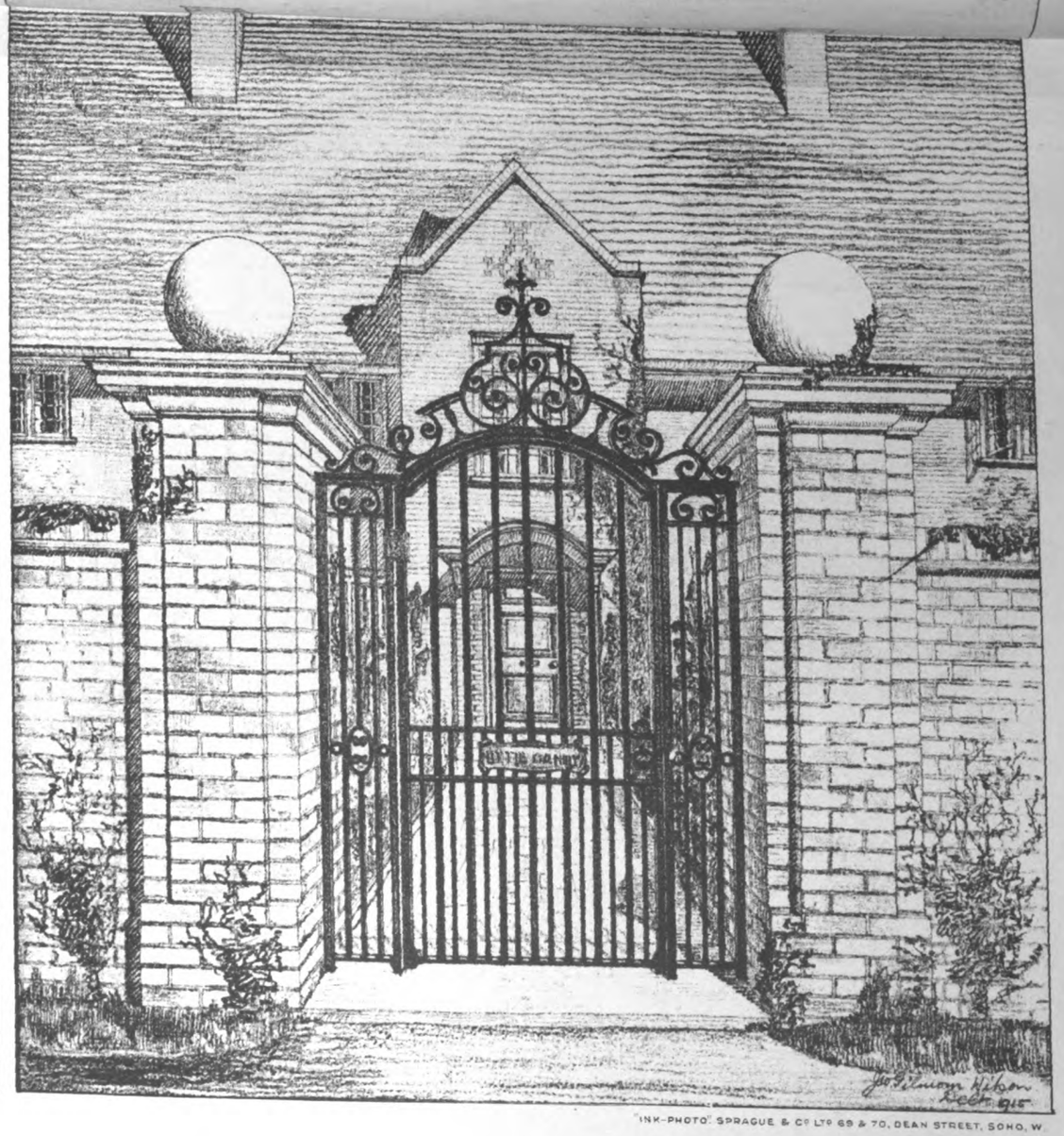
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Applying to these words a very usual canon of interpretation, that the specific mention of one alternative implies the definite exclusion of the other, it might be thought that the value of such a covenant or undertaking was intended to be excluded in every case where the rent reserved was more than nominal. And if any one were to infer, say, from the curious drafting of Section 2 (3), remarked upon by the Court of Appeal in Hayllar's case, that the hand that drafted Section 13 was the hand of one who was not perfectly familiar with the course of transactions in land, such a captious critic might suppose that the draftsman when he was penning this section had recalled some vague reminiscence of a thing called "a peppercorn," sometimes paid by people who built buildings, and had proudly put his dangerous little piece of knowledge into a parenthesis.

But the Courts have fortunately taken a more serious, and no doubt a juster, view. They have held that the draftsman could not have been ignorant of the fact that in countless cases building agreements are entered into in the first instance, sums large or small are then expended on construction, and leases at rents by no means nominal are granted after the buildings have been erected; and they have held that the Legislature could not intentionally have committed such an ineptitude as to inflict a heavy penalty of additional reversion duty in such cases. Accordingly they have held that sums expended under a building agreement are "payments made in consideration of a lease" subsequently granted, even though the rent reserved in that lease is not nominal. When it is remembered that a building agreement is usually an agreement for a lease, and that by the definition in Section 41 "lease" includes an agreement for a lease, this result becomes somewhat remarkable.

Seven judges were unanimous in arriving at the conclusion just summarised; four out of the seven deemed it best to ignore altogether the existence of the parenthesis; while those who assigned a meaning to it at all, said that it applies only where there is an agreement to spend money after the granting of the lease itself, and not where money has been spent beforehand. But this interpretation itself still leaves the parenthesis undisturbed where it does apply; thus where there is no building agreement, but only a lease with a covenant to erect buildings or incur expenditure in the future, that covenant will not be taken into account except where the rent reserved is a nominal rent. Certain *dicta* of their Lordships, however, leave it open to be contended that almost any rent below a rack-rent is a "nominal rent"; and more may be heard of that point in times to come.

One practical result of this case will be that it will in future be to the interest of the lessor, where the lessee contemplates erecting buildings or incurring expenditure, to grant an agreement for a lease in the first instance; and this not only in the case of ordinary house-building operations, but in the case of companies or firms about to erect large works, in fact in the case of all new or expanding undertakings which are not upon freehold sites. Where there is likely to be further expansion, or a subsequent renewal of the lease, this course will be to the lessee's interest also. Industry will thus be penalised by having (often quite unnecessarily except for the reversion duty) to have to go through the cumbrous and expensive process of negotiating an agreement with the landowners twice instead of once. But perhaps I ought not to complain, for the profit will be to the lawyers.

Other points decided in connection with reversion duty are as follows: The "value of the benefit" is to be ascertained only as laid down in Section 13 (2) (Ramsden *v.* Inland Revenue [1913] 3 K.B., 580 (n)); in ascertaining that value no deduction is to be made because the lease is surrendered (Inland Revenue *v.* Marquess of Anglesey [1913] 3 K.B., 62); nor because it was granted upon the surrender of a previous lease (Inland Revenue *v.* St. John's College, Oxford [1915] 2 K.B., 621); the total value on the determination of a lease includes the licence value of a public-house (Earl Fitzwilliam *v.* Inland Revenue [1914] A.C., 753); a marriage settlement does not exempt from the payment of reversion duty under Section 14 (1) (Inland Revenue *v.* Gribble [1913] 1 K.B., 220).

The decision in Inland Revenue *v.* St. John's College, Oxford, just referred to, is important with regard to the assessment of reversion duty where the lease is one of those periodically granted, according to the practice of many corporate bodies, upon surrender and the payment of a fine. In that case, when the previous lease was surrendered in 1896, it had twenty-six years unexpired. The lease surrendered in 1910 had been granted in 1896, at the rent reserved in the previous lease for a term of forty years on payment of a fine of £95 8*s*. What was in effect granted was an additional fourteen years' lease at the expiry of the original term. The fine had been calculated, putting the two guineas rent on one side, at two years' purchase of the annual value of the property; and two years is practically (according to Willick's Tables) the present value of a lease for fourteen years deferred twenty-six years. The Crown contended that the sum of £95 8*s*. was to be taken as a premium for a forty years' lease (as it nominally was) and reduced to an annual sum as if the property had been in hand when the lease was granted, which was not the case. Mr. Justice Rowlatt held that that contention was wrong, and that the College was right in saying that the total value at the grant of the lease in 1896 was to be calculated on a basis of adding to the rent reserved of £2 2*s*. the additional annual value of £47 14*s*. (half the fine which represented two years' purchase), these being in truth the payments made in consideration of the lease. The learned judge said that he had to apply the words of the statute "perfectly strictly, but so as to make them operate in a sensible way by reading 'payment' with regard to that for which the payment was made, and not by taking the payment as being made for the same thing in the case of an immediate term granted, and in the case of a deferred term granted upon the surrender of an existing lease." No one who understands these matters will be inclined to differ from that conclusion.

The cases as yet decided by the Courts in regard to the undeveloped land duty have been comparatively few. Among these, that of Southend-on-Sea Estates Company, Ltd. (1915) A. C., 429, is, I think, the most recent, and probably the most far-reaching. Section 17 (5) prevents the duty from being levied where agricultural land is held under a tenancy originally created before April 30, 1909; but if the landlord has power to determine, the duty becomes leviable as soon as he can exercise the power, whether he in fact does so or not. In numerous cases the Inland Revenue attempted to levy the duty where there was power to determine in case the land should be required for purposes of building and so on, and sought to say that it was immaterial whether the land was really required for those purposes: if the power exists, they said in effect, and the landlord is the sole person to decide whether he shall exercise it, then he can at any time determine the tenancy, and he is liable for the duty. The Court of Appeal and the House of Lords have rejected that contention, and have held, where the right reserved was "at any time to resume possession for building or other purposes," that "other purposes" meant purposes of the same kind as building, and that if the landlord had no such purpose he had no power to determine, even though he might have power to form the purpose. Technically, no doubt, this was merely a decision upon the particular form of words used in one agreement; but those words were wide, and I doubt if there are many agreements of this class which would not come within the principle laid down. I do not know if the Inland Revenue have sought to enforce their contention in other cases since the decision; but they would probably have difficulty in doing so.

The Commissioners have certainly been unfortunate in their drafting of Form 4, both in regard to that ill-starred question in which they asked for the owner-occupier's estimate of the annual value of his land, and in regard to the questions concerning minerals. It is difficult to resist the conclusion that they were trying to trap the taxpayer into unconsciously making admissions damaging to himself, or to sympathise with them now that they have been hoist with their own petard.

Reference to the case of Form 4 (Dyson *v.* Attorney-General [1911] 1 K.B., 410) brings us to the other cases decided with regard to the general valuation. That case itself is now, perhaps, ancient history, and need not be dwelt on. But there have been several cases of great importance decided upon the portentous Section 25. Everybody in this room is no doubt familiar with that section—if it is not presumptuous to use the word familiarity in relation to such a Frankenstein's monster—and I do not propose to add to the length of this paper by reading it; but it is comforting that even so perspicuous a judge as Moulton was puzzled to know, as he said in Inland Revenue *v.* Herbert (1913, A.C., 326, at page 358, "for what reason the draftsman chose to express the definition (of full site value) in so peculiar a fashion." It is not too much to

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say that Clause 14, as it was when originally drafted, was a monument of illiteracy, and the draftsman who was brought in on the report stage, like the second collaborator who is sometimes called in in the theatre to "pull the play together," seems to have re-written the section with some desire to give it a logical appearance, but the effect of his doing so has been, as decided by the House of Lords in the Scottish case just referred to, that in certain cases the assessable site value ascertained under Section 25 may be a minus quantity.

It was strenuously argued that the value of bare site could never be less than nothing, and that Parliament must have legislated in view of that obvious fact. The effect of the decision is that Section 25, in its main lines, has little to do with real life, and merely prescribes the solution of an academic problem.

The success of the Crown in this case is thus a much greater condemnation of the Act than its failure would have been. No doubt the object of its contending for minus site values was to increase the amount leviable as increment value duty in the cases concerned. But it has gained that tactical victory at the cost of a strategical defeat.

Incidentally, two of the learned Lords (pp. 355, 362) expressed views which are, at first sight, somewhat surprising as to the meaning of site value in Section 3 (5), which provides for a 10 per cent. reduction upon the collection of increment value duty. These views, which were not a part of the decision of the House, and are not in complete agreement with each other, have not, as I gather, been acted upon by the Inland Revenue, and I have not heard that any taxpayer has claimed the benefit of them; they were negatived in the Revenue Bill of 1914, which did not pass into law; but they show how difficult it is to interpret this Act so as to arrive at a practical result.

The basis of the calculation directed by Section 25 is the value of land "sold in the open market by a willing seller," and has been discussed in the cases of Inland Revenue *v.* Clay and Buchanan (1914) 3 K.B., 466, and of Glass *v.* Inland Revenue (1915) S.S.C., 449. In the English case Lord Justice Pickford said, at pp. 478-9: "'Sold in the open market' means sold in such a way that anyone wishing to purchase was able to do so—e.g., by auction or by putting the house into the hands of an agent to sell, and I think a willing seller means one who is prepared to sell, provided a fair price is obtained under all the circumstances of the case. I do not think it means only a seller who is prepared to sell at any price and on any terms, and who is actually at the time wishing to sell. In other words, I do not think it means an anxious seller. . . . The gross value is not to be measured necessarily by the price given by a buyer who is peculiarly in need of the particular piece of property, but it seems to me clear that the fact of there being such a person in the market must have an influence on the value in the open market." Upon these principles, which must commend themselves to all who bring any experience of sales or valuations of land to bear upon the question, the Courts have held that where the trustees of a nursing home desired to extend the home by acquiring the house next door, and where a water board desired to acquire lands within their catchment area, the value to the trustees and the board was the market value of the house or land, and that it was not true to say that the market value was the value to outside purchasers with a mere pound or two added to represent the extra bid of the nursing home trustees or the water board.

Tenant-right—i.e., the value of unexhausted manure or tillages—is included in gross value and total value, and is not to be deducted as a matter personal to the occupier (Inland Revenue *v.* Smyth [1914], 3 K.B., 406); neither is the value of the land laid down in grass. The same decision, however, directed the value attributable to grass to be included in gross value, but to be deducted in "divesting" or arriving at full site value. The meaning of "structure" in the divesting clause was considered, and the road in that case was held, from its construction, to be a "structure." Sea walls and drainage dykes are not "buildings" or structures connected with buildings (Waite's Executors *v.* Inland Revenue [1914], 3 K.B., 196); nor are the dry stone-walls which so familiarly replace hedges in many parts of the west and north of England (Morrison *v.* Inland Revenue [1915], 1 K.B., 716). The value of agricultural land for agricultural purposes does not include its value for sporting purposes (Inland Revenue *v.* Hunter [1914], 3 K.B., 423). The cases of Smyth, Hunter, and Morrison are still under appeal to the Court of Appeal, and the effect of the various decisions just summarised appears to have been to delay indefinitely the valuation of agricultural land.

A very similar effect has been produced upon the valuation of land developed by buildings by the decision in Inland Revenue *v.* Whidborne's Executors (1915), 2 K.B., 350, where deductions were allowed in respect of the appropriation of land for roads, and of the construction of roads in an ordinary building estate; and the deductions took the form of a single sum applying to each building plot, being the percentage of its total value attributable on April 30, 1909, to the dedication and construction of the roads. In face of the language of sub-section (4) it is difficult to see what legal contention the Crown could put forward against the allowance on principle of the deduction; and a perusal of the reported arguments of the Law Officers does not solve the doubt. That they felt the difficulty themselves is shown by the fact that their chief attack was directed against the form of the deduction. They failed both on the question of principle and on the question of form.

From this, I fear, somewhat dreary review of the cases decided under the Finance Act of 1910 a few salient points emerge: the increment value duty is, by the victory of the Crown in the Lumsden case, shown to the convincing of most parties to work injustice in the case of the building industry, and thus to impose an additional fetter on the housing movement; the reversion duty is, by the refusal of the House of Lords in Lord Camden's case to believe in the unjust intention which the language of Section 13 goes far to substantiate, much reduced in its possibility of yield; the increment value duty as regards minerals is in a state of flux; last and by no means least, the national valuation—the new Domesday Book—the inaugurator of the millennium—remains suspended because the Courts have held that certain sub-sections of Section 25 are capable of a practical application to agricultural land and to land covered with houses. The valuation machinery cannot proceed, because it has been held that the valuation must, in part at any rate, be made in the light of actual fact. But a political truce now prevails in the country, and there will be no peroration to this paper.

A PALÆOLITHIC SITE IN JERSEY.

THE exploration of the Palæolithic site known as La Cotte de St. Brelade, Jersey, has been carried out by a committee of the British Association. The committee consisted of Dr. R. R. Marett (Chairman), Mr. G. F. B. de Gruchy (Secretary), Dr. A. Keith, Dr. C. Andrews, Dr. A. Dunlop, Colonel R. Gardner Warton, and Mr. H. Balfour. At the recent meeting in Manchester the following interim report was presented of work done in July 1915:—

This year there have naturally occurred many obstacles in the way of archæological research, and indeed it proved impossible to resume operations at Easter, as had been originally intended. At the close of the potato season, however, when the demand for labour temporarily slackens in Jersey, there was at length forthcoming the required amount of assistance of a manual kind, Mr. Ernest Loghorn being the contractor as before. Nor, again, in the matter of skilled investigation, was it easy to arrange for the sufficiently continuous attendance of a body of helpers. Yet, despite the paramount claims of war-service, a staff was enlisted who made up for any deficiency there might be in their numbers by devotion and sheer staying-power.

In 1911 excavation proceeded along the western side-wall of the cave so as to bring to light a strip of palæolithic floor extending some 25 feet inwards. It was decided this year to push still further back along this line, and, if possible, to reach the hitherto undetermined back of the cave. This is known as Working A. Further, in 1914 a trench was carried right across from the western to the eastern side-wall, a distance of about 40 feet. The portion of floor thus opened up lay 8 feet from the entrance, and when work ceased last year was flanked by precipitous walls of talus, that on the inner side being about 45 feet high, while the outer one averaged 25 feet. It was resolved, therefore, in regard to excavation in this direction, to undertake first the relatively easy and safe task of demolishing the talus on the outer side, and so clearing the cave along the whole breadth to the entrance. This was termed Working B. Lastly, it was thought desirable to attempt something on the inner side of the clearing, and to push back cautiously along the eastern wall, at any rate so far as an overhanging shelf of the live rock afforded some pro-

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tection from the ever-threatening downfall of débris. This was distinguished as Working C.

To consider, then, these three operations in succession. Working A has not progressed very far, but will receive more attention shortly. An additional 5 feet of penetration has been accomplished with a breadth of 6 to 8 feet, bringing up the total distance cleared from the entrance to 30 feet. Some very heavy quarrying has been necessary here which has involved the use of dynamite, the upper portion of the débris consisting of large blocks wedged tightly against a rather shaky roof; so that it is necessary to proceed with great circumspection. Worked flints occur sparsely at about 2 to 4 feet above the bench-mark from which floor-level is measured; there is very little bone to be met with. Working B has been highly successful, and the cave is now clear across its entire front. The central part of the talus which has just been removed proved to be almost sterile, but a richly implementiferous bed reaching from near floor-level to a height of 12 feet was found to exist under the ledge projecting some 12 feet outwards along the eastern side-wall. The spoil collected here in the shape of worked flints, together with cores and hammer-stones, must amount at least to a hundredweight. There was found also a good deal of bone in fair condition, ranging in size from the minute remains of lemmings to a huge knuckle-bone belonging presumably to a mammoth. It is noticeable that a specially fine set of implements occurred near the very top of this bed, the form of these tending towards that elongated leaf-shaped pattern which has been termed "hemi-solutrian." Thus it would almost seem as if we had to do here with a later and more evolved product of Mousterian art than is to be found in the lower deposits of this cave; though it is true that in other places where the implementiferous bed is much thinner, extending at most to a foot or two, there was no apparent correlation between quality of workmanship and stratigraphical position. Working C has also proved very fertile so far as it has been pushed under the projecting shelf of the eastern wall—namely, a distance of 27 feet from the entrance. Here the presence of a former hearth was indicated by a quantity of burnt bone. Flint was plentiful, but tended to be of coarse pattern. So, too, along the opposite side-wall the quality of the worked flint would seem to deteriorate as we penetrate into the depths of the cave. A sufficient explanation is probably to be found in the fact that the finer work needed the better light. Further, at the angle situated about the centre of the cave where Working C passes into Working A, the removal of a large block weighing some eight tons revealed the clearest indication hitherto encountered of the way in which the intrusive cave-filling is related to the ancient floor of occupation. At this spot a definite line can now be traced, of irregular height, but averaging 6 to 8 feet over bench-mark. Below this line everything is cemented together into a compact breccia, whereas above it the rock-rubbish is quite loose. At the top of the solid mass occurs a sandy deposit about 1 foot in thickness which is finely laminated and has in places almost the consistency of sandstone. This is apparently quite destitute of bone-refuse or flint-chippings. Thus it would seem as if the ancient floor must have remained open to the winds of heaven for a long period after the Mousterian occupation, so that much dust was able to accumulate here before the cave came to be more or less effectually sealed up by the stony shower from above.

At the present stage of operations, before the determinable bones have been identified, and the flint implements sorted into types, there can be nothing more to report. Enough, however, has been said to show that results have so far fully come up to expectation. Approximately 1,000 square feet of floor have now in all been cleared. Meanwhile the sheer mass of the finds, not to speak of their excellent quality, well-nigh beggars description. This has turned out to be one of the richest palæolithic sites in Europe. It only remains to add that the Chairman and the Secretary, who have throughout been in charge of the work, could have effected little of themselves seeing how every trowel-full of cave-earth must be mintely searched through, without the intelligent co-operation of many volunteer assistants. Some of the older workers, it is to be feared, have been kept away from the cave itself by the nature of the approach thereto, which has of late assumed a somewhat Alpine character; though not even the present system of break-neck ladders could deter Dr. Dunlop from visiting us, while the rest have rendered manifold aid from a distance. Finally, the quarrymen have toiled with a will and have, with the rest of the party, braved danger freely; for in these trenches, too, there are risks to be faced, the débris having already scored one direct hit (resulting in a slashed wrist) and brought home several ricochets. Considering the conditions, however, all has gone very well, and the experience of several years' siege of this Mousterian stronghold ought to enable us to carry through our present instalment of work without any serious accident such as might mar an otherwise complete triumph.

The Committee is aware that this is not the most favourable moment at which to apply for a further grant. Moreover, it may prove at the end of the present excavation that the most profitable portions of the cave have been worked out. Nevertheless, if the funds be forthcoming, there remains plenty of useful work on which they may be spent, since the inmost depths of the cave are quite untouched.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Excess Profits and Architects and Surveyors.

SIR,—Many letters have been written to the Press by people who object to pay excess profits taxes—but there is an obverse side to the medal.

Many very worthy men who have happily carried on honourable and legitimate business as architects or quantity surveyors and were passing rich on £40 a year have, as a direct result of the action of the Government in practically prohibiting anyone building a house for himself (euphoniously described as advice in economy by the Government), been brought from affluence to penury. I think that where such a result can be shown to the satisfaction of the income-tax assessor, that some portion of the excess profits tax should be directly distributed to them.—Yours, &c.,

W. H. WOOD.

Queen Square House, Leeds: December 7, 1915.

Proposed Rebuilding of Lady Chapel at Norwich Cathedral.

SIR,—I note in the Dean of Norwich's interesting paper in your last issue on the chapels of that cathedral, a proposal mentioned of rebuilding the Norman Lady chapel as a county war memorial.

Such a commemoration as this would at least have the advantage of sparing us such eyesores and anachronisms as the brazen memorial panels which disfigure the arcadings of Winchester Cathedral, or the terrible imitation Zulu shields to be found on a screen at Lichfield. And although subject to certain drawbacks incidental to all works of reconstitution, this one would at all events not infringe upon existing antiquity, being external to the fabric. But the question seems to me to arise whether, granted the desirableness of reconstruction, it were not better to rebuild the more spacious and necessarily more elegant Gothic Lady chapel of which the entrance arch remains in the eastern wall of the ambulatory. This arch will of course in no circumstances be interfered with, and possibly there are records of the chapel itself which would enable a new building of corresponding character to be re-edified on the existing foundations. If re-edification is to be done, one would like it to represent the historic past at its fullest and completest development.—Yours, &c.,

W. RANDOLPH.

6 North Road, Surbiton: December 8, 1915.

THE Trustees of the Alexander Thomson Travelling Studentship at Glasgow have decided again to postpone the competition for this Studentship for one year owing to the war. All students who were eligible at the date originally fixed, and have gone on military duty, will be allowed to compete when the competition is held.

THE accounts in connection with the statue in Lincoln Cathedral to the memory of the late Bishop have been made public. The detailed items of expenditure are as follows: Sir William Richmond (including £310 to Mr. Burton for casting), £1,700; expenditure for Dean and Chapter, £19 14*s.* 2*d.*; Mr. Gill, for cutting letters on base (per Sir Charles Nicholson), £15 15*s.*; Messrs. Emley, for base, £62 10*s.*; Messrs. Wright, for fixing statue, £8 8*s.*; Mr. Burton, fittings on base, men's time, freightage, &c., £32 19*s.*; total, £1,838 16*s.* 2*d.*

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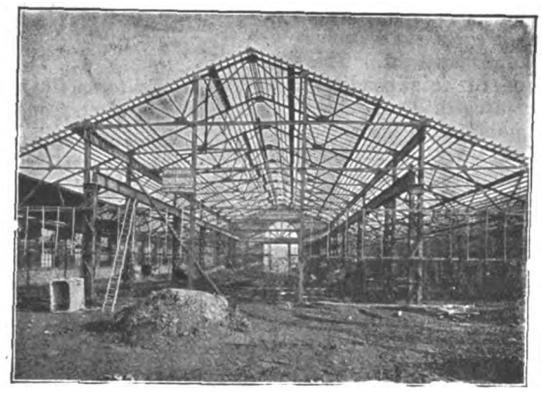
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A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Houghton Regis.—Shop, High Street, for Mr. F. Room.

Leagrave.—Six cottages, Midland Road. Mr. G. Kingham, builder, 106 Old Bedford Road, Luton.

Luton.—Factories, Hitchin Road and Taylor Street: additions, for Thermo Electric Company.

Factory, Biscot Road: additions, for G. Kent, Ltd.; also

"Swarf House": extension.

Two houses, Biscot Road. Mr. J. Tomkins, builder, Langley Road.

The "King's Arms" p.h., Chapel Street: additions and alterations, for B. Bennett's executors.

Workshops, Kimpton Road, for Vauxhall Motors, Ltd.

BERKSHIRE.

Newbury.—Four houses, Russell Road, for Mrs. Chivers.

CHESHIRE.

Sandycroft.—The "Lifeboat" Inn: alterations.

CUMBERLAND.

Port Carlisle.—The Temperance Hotel: additions.

DERBYSHIRE.

Chesterfield.—The "Old Feathers" Inn, Lordsmill Street: rebuilding. Mr. P. B. Houfton, architect, Furnival Chambers.

DURHAM.

Crook.—Post Office, Victoria Street.

Pelton.—Nineteen houses, for N.E.R. Company.

ESSEX.

Burnham-on-Crouch.—Canvas factory: addition, for Messrs. Nethercoat & Co., Ltd.

Works: addition, for Messrs. Cranfield & Carter.

GLOUCESTERSHIRE.

Avonmouth.—Reading room and library, for the Bristol Docks Committee.

Bristol.—Municipal Museum: extension.

HAMPSHIRE.

Aldershot.—Nos. 81 and 83 High Street: additions, for Messrs. Guppy & Son.

Workshop, Alfred Street: addition, for the Aldershot Mechanical Engineering Company.

Bournemouth.—The Apostolic Faith Church: additions. Mr. W. O. Hutchison, architect.

KENT.

Faversham.—Offices, Court Street: additions. Messrs. E. Pover & Son, architects, 54 and 55 Park Road.

Kennington (East Ashford).—Bungalow, for Mr. E. Tutt.

Margate.—No. 147 Northdown Road: additions. Messrs. Moodey & Chrisfield, architects, Station Gates, Broadstairs.

LANCASHIRE.

Accrington.—St. Peter's Church: proposed vestry extension.

Bolton.—Business premises, Blackhorse Street: alterations, for Messrs. R. Lee & Son.

Motor garage, Bark Street, for W. Kay, Ltd.

Motor garage, Clive Street, for Messrs. W. Bennett & Son.

Motor garage, Newsome Street, for Messrs. J. Bradshaw & Son.

Lancaster.—Christ Church: vicarage alterations, for the Rev. M. K. Cooper.

Manchester.—Warehouse, Church Street, for P. Lloyd Rees, Ltd.

Works: additions, for Sir W. G. Armstrong, Whitworth & Co., Ltd.

LEICESTERSHIRE.

Burbage.—Motor garage, for Messrs. Robinson Bros.

LINCOLNSHIRE.

Coningsby.—House, for Mr. T. Pearson.

MIDDLESEX.

Hendon.—Cottage flats, Erskine Hill, for Mr. J. S. Soutar.

Twenty houses, Hodford Road, for Mr. C. W. R. Simmonds.

SOMERSET.

Taunton.—Premises, Fore Street, for Lloyds Bank, Ltd.

STAFFORDSHIRE.

Tamworth.—Two houses, Woodhouse Lane. Mr. H. Willdig, builder, Amington.

Two houses, Amington Road, Bolehall, for Mr. T. Barlow.

SUFFOLK.

Felixstowe.—Proposed secondary school.

SURREY.

Kew.—"Aspern House," Mortlake Road: additions, for Mr. C. W. Boore.

SUSSEX.

Worthing.—St. Andrew's Schools: proposed additions and alterations.

WARWICKSHIRE.

Birmingham.—Premises, Great Charles Street. Messrs. Cossins, Peacock & Bewlay, FF.R.I.B.A., architects, 83 Colmore Row.

School, Saltley (£10,000). Mr. W. H. Ashford, A.R.I.B.A., architect.

Works. Mr. A. E. McKewan, A.R.I.B.A., architect, 95 Colmore Row.

Coventry.—Baptist Church, Gosford Street: proposed schools.

Foleshill.—Premises, Alderman's Green: additions and alterations, for Coventry Co-operative Society.

YORKSHIRE.

Brighouse.—Mill buildings. Mr. E. C. Brooke, architect, Central Chambers.

Netherton.—Proposed new Congregational Church.

WALES.

Bangor.—The Carnarvonshire and Anglesey Infirmary: suggested extension (£4,000).

Criccieth.—Bungalows, near the Lifeboat House, for Mr. J. E. Williams (of Tanygraig).

Bungalow, Tynllan, for Mr. J. S. Higham, M.P.

Lampeter.—"Iona," Bridge Street: additions, for Captain J. D. Owen.

Mold.—Cottage Hospital: alterations. Mr. F. A. Roberts, architect, Earl Chambers.

St. Asaph.—Workhouse: addition, for B.G.

SCOTLAND.

Brechin.—No. 123 Montrose Street: rebuilding, for Mrs. Wilson.

IRELAND.

Cahirciveen.—Dispensary residence, Kinneigh (£1,300), for B.G.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 18,285. August 7, 1914.—Richard Weiss, 11 Landahnstr., Sulz, near Coln, Germany. Method of conducting sewage water.

21,706. Oct. 29, 1914.—John Stevenson and O. R. Williams, B.Sc., both of Railway Appliance Works, Albert Hill, Darlington. Span-rope side traversing arc and incandescent or gas-lamp automatic connecting, suspending, and lowering device.

22,021. Nov. 4, 1914.—Vincent Canova, 36 Banbury Street, Birmingham. Clockwork-controlled valve apparatus for lighting and extinguishing gas burners.

22,420. Nov. 12, 1914.—J. B. Bent, Montague Street, Kettering. Hot-water systems for heating buildings and the like.

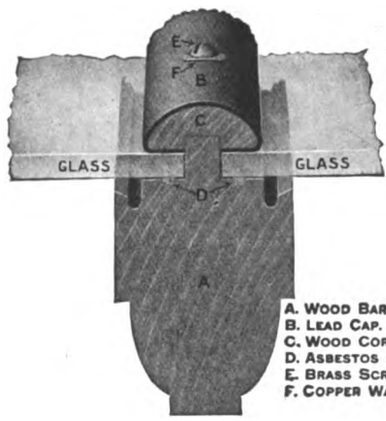
22,481. Nov. 13, 1914.—Brinjes & Goodwin, Ltd., Whitechapel Engine Works, Fieldgate Street, and Francis Titterton, 216 Boundary Road, Walthamstow. Apparatus for use in filtering or for separating liquids from solids.

Any of the above specifications may be obtained from J. D. Roots & Co.

MR. GEORGE LISTER SUTCLIFFE, F.R.I.B.A., of Hampstead, and formerly a member of the firm of Sutcliffe, Hebden Bridge and Todmorden, architects, left £5,998.

THE Royal Technical College, Glasgow, has a noteworthy record in its Roll of Honour. According to the annual report, which was adopted on October 19, no less than 1,819 members were on service, comprising eight members of the governing body and of committees, thirty-seven members of the staff, 1,152 students of 1914 and 1915, and 622 students of previous sessions. Of that fine total ninety-one had given their lives in their country's cause.

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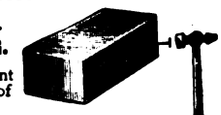
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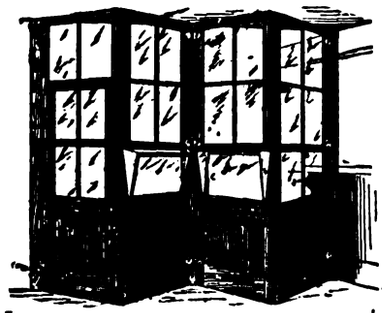


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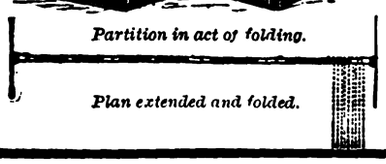
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, December 17.

Egypt Exploration Fund: Paper entitled "Pre-Dynastic and Early Dynastic Egypt," by Mr. A. M. Blackman, in the rooms of the Royal Society, Burlington House, W., at 4.30 P.M.

Monday, December 20.

Victoria and Albert Museum: University Extension Lecture XII., on "The Later Renaissance Churches and Palaces of France," by Mr. Banister Fletcher, F.R.I.B.A., at 4.30 P.M.

STUDENTS' WORK AT THE ROYAL ACADEMY.

THE School of Architecture at the Royal Academy has suffered most serious depletion by the War, to its honour be it recorded, for all its best students are in the service of the King and only a few are left to carry on some small portion of the usual programme of work. The young men who ordinarily fill the School are precisely of that age most needed for military service and of that calibre most suited for officers in the new armies, and it is gratifying to know that they have responded to their country's call in the hour of need.

Hence but a very meagre show of work illustrates the competition for prizes amongst the juniors, and even this is not deemed worthy of the first prize of fifteen pounds and silver medal. The only award made is that of the second prize of ten pounds and silver medal, open only to students in their first term, which has been easily won by Mr. Daniel Roye Lyne with his set of drawings for a loggia, so-called, which appears rather to be an open-air restaurant or dining-room, as it is simply an oblong room lying east and west of which the southern side is mainly occupied by an opening of three bays, divided from each other by quadruple groups of columns. At either end of the "loggia" is an open "atrium" with a covered "piazza" or colonnaded loggia, and beyond these are a "summer drawing-room" on the west, and a "winter drawing-room" on the east. The northern side of the block is occupied by open "porches," leading respectively to the "loggia" and the two drawing-rooms, by service rooms to the "loggia" and by caretaker's quarters. The whole building, therefore, has apparently been conceived as an open-air club or restaurant for summer use, despite the winter drawing-room which, however, does not differ save in its side aspect from the summer one. The whole is an exercise in academical planning with as many plan-features of loggia type as possible, whether called porches or piazzas or loggia. The usefulness of the drawing-rooms would, we think, be enhanced if they were not wholly cut off from the culinary service department. The kitchen, by the way, is presumably provided in some part of the building that is not shown on the plan.

The external treatment is well grouped, in a scholarly if not enthusing version of Italian renaissance, and the draughtsmanship is good.

Another design for the same subject shows the "loggia" connected by wide-spreading, quadrant-planned open colonnades to two sitting-rooms. Service provision for meals to the loggia is included here also, and thus, apparently, formed part of the conditions of the problem with the sitting or drawing rooms, which in this case are even more disconnected than in the winning plan. In no sense does this design approach the merit, moderate though it be, of Mr. Lyne's, either in planning, grouping, detail or draughtsmanship.

Other subjects set to the students were a school for two hundred boys and a monument to a famous general. For the former the set of drawings numbered 105 is the best, and shows six class rooms for thirty boys in each, with a central assembly hall, a dining hall and lecture room in a long range of buildings on one front, behind which is an enclosed turfed quadrangle surrounded by corridors from which open cloak rooms and other accessories. The cloak room provision appears to be insufficient in size for two hundred boys. The exterior is well treated in a modernised version of English eighteenth century manner, in red brick with a moderate amount of stone in cornices, bands, strings, &c., the whole covered with carefully drawn Italian tile roofs.

The drawings numbered 107 also show a design for the school around a central enclosed quadrangle with the class rooms on opposite sides of it. The assembly hall has the grave fault of being lighted from the ends only, one big window in front and three at the rear, all high up. The art room and the lecture theatre are also lighted by windows high up over adjacent corridors and are eighteen feet high to make this possible. This plan provides plenty of cloak room accommodation but is not otherwise equal in merit to No. 105. The exterior treatment is in a quite modern type of renaissance of which the principal feature is an elaborate window at the end of the assembly hall.

Frankly, the subject of a monument to a famous general has been beyond the powers in design of the students who have attempted it. It would indeed be surprising if any other result had occurred. For how many really satisfactory monuments—to famous generals or anyone else—are to be found in England or even in Europe? When artists of established reputation and matured experience have failed to produce truly dignified and worthy monuments it is not to be expected that embryo architects should achieve success. The author of No. 110 would seem to have been imbued with the praiseworthy ambition of following in the footsteps of Alfred Stevens in monumental treatment of the Italian renaissance, and without too obvious plagiarism has made a meritorious attempt, but in compromising between the nude and modern costume has found no better habiliment for his accessory figures than the martial panoply of Roman legionaries. And what shall we say for the costume of the famous general? Is it intended for a Roman tunic with fleshings for the lower extremities enveloped in the quasi-military cloak of a hundred years ago?

In design No. 106, the famous general is depicted as a bust only on a circular panel, and the sculpture consists of three seated fully-draped female figures, presumably of allegorical import, the central one of whom holds aloft the torch of fame. The architectural part of the monument is merely a flat facade filling a presumptive niche, of which the head forms the locale of a canopy of elaborately moulded composition fronted by a classic Roman trophy of arms. One other design, No. 111, is inferior to both.

In the adverse circumstances from which the Royal Academy School of Architecture is suffering, one can but feel that praise is due to the authorities for carrying on the School at all instead of closing it altogether, and we are not disposed to speak hardly of the standard of work produced. Some few students are learning something of design and have their feet set on the road to better performances in the future, which they would scarcely attain without the help that is given them by the instruction and exercise in the School.

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ROYAL ACADEMY SCHOOLS PRIZE DISTRIBUTION.

The distribution of prizes to the Royal Academy students took place on Friday, December 10. As the President remarked, the anniversary meeting was held under unusual, and it was to be hoped, unique circumstances. This showed itself in various details as well as in the all-important fact that the Council decided some time ago to hold back all the gold medal competitions. For instance, the function took place during the afternoon instead of in the evening, the lecture hall was not arranged in the usual tiers of seats because the usual public lectures have been abandoned, and the students themselves gave little or no sign of their usual overflow of high spirits.

Sir Edward J. Poynter, P.R.A., K.C.V.O., before presenting the awards, gave a short address in the course of which he pointed out that for the first time since the foundation of the Royal Academy, 147 years ago, it has been found advisable to suspend the competitions for the gold medals carrying with them the travelling studentships in the three Arts of Painting, Sculpture, and Architecture. The Council felt strongly that, in view of the depletion of the Schools through the absence of so many of the best students with the Colours abroad and from other causes, competitions in subjects so advanced as those for the Gold Medals would not produce results which would justify their award. How serious the depletion had been would be understood when he told them that no fewer than 134 of their past and present students, of whom fifty-five were painters and sculptors and seventy-nine were architects, had given up their work and joined his Majesty's Forces. In the case of the sculptors and architects, indeed, the students who had left for this cause were so numerous that it had been thought advisable to close the Architectural Schools altogether for the duration of this devastating war, and to take the same course with regard to the day classes in the Modelling Schools. In addition to these, ten lady students had sacrificed the profession of their choice and engaged themselves in hospital, Red Cross or munition work. This reflected high credit on the patriotism of the students of the Royal Academy. To those who had the calling at heart the practice of the Arts was an absorbing pursuit, and to abandon it for the "perilous edge of battle" and its uncertainties was not merely an act of self-abnegation, but it showed the true heroic spirit. The terrible realities of such self-sacrifice came home to them when they learned that one of their most promising students who gained the Gold Medal for Painting a few years ago, and five others had been killed in action. Let it be hoped that they had not given their lives for their country in vain.

Under such conditions the competitions for this year's prizes were highly creditable to the students who remained. In the case of the Creswick prize for landscape, the competition seemed generally above the average, and the work which had gained the prize stood out not only as first in the competition, but the best he remembered during the nineteen years that he had occupied the high position of President. In observation of the true effect of Nature, in the rendering of pure light and transparent shadow, and in study of detail, all of which was carefully given while unobtrusive, and in the quality of the painting, simple, but free from pretentiousness of skill, which looked clever but meant nothing, this work was worthy of all praise, setting good example and giving promise of high success in the future. The subject for the Turner Medal was more difficult, depending on a transitory effect. It could not be treated so directly from Nature. It demanded the use of the imaginative faculties, and, although the competition reached a fair average—higher indeed than some of past years when no prize was awarded—it called for no special remark. The only other subject to which he would refer was the Design for the Decoration of a Public Building. Here, as in three other cases, there was a tie between two of the works, and it was left to him as President to give the casting vote. He selected the one to which the prize was awarded because, in spite of some very obvious faults, it had the qualities—what were called architectonic qualities—which were indispensable for great decorative design where something more was wanted than a pretty picture. It was in the drawing of the principal figure that the design was rather flagrantly faulty; otherwise there was evidence of its being well thought out, and it showed a feeling for composition both in form and colour. The life drawing and painting and the work of the sculpture students was well up to the average, and the whole competition was highly creditable to the School.

The list of prizes and prize-winners was as follows:—

Landscape Painting, "Dawn," Turner Gold Medal and Scholarship (£50), Harold Williamson.

Landscape Painting, "A Rickyard," Creswick Prize (£25) and Silver Medal, Sylvia Ellen Gauntlett. Prox. acc. Una Hook.

Design for the Decoration of a Portion of a Public Building, "The Triumph of Peace," 1st Prize (£30) and Silver Medal, not awarded; 2nd Prize (£10) and Bronze Medal, James Pollard. Prox. acc. Florence Mary Asher.

Design in Monochrome for a Figure Picture, "The Raising of Lazarus" (St. John, xi. 43, 44), Armitage Prizes, 1st (£30) and Silver Medal, not awarded; 2nd Prize (£10) and Bronze Medal, Agnes Clara Tatham.

Composition in Colour, Silver Medal, no competition.

Cartoon of a Draped Figure, "Pandora," Prize (£20) and Silver Medal, Dorothy Fraser Litchfield.

Two Paintings of a Figure from the Life, 1st Prize (£10), and Silver Medal, Florence Mary Asher; 2nd Prize, Bronze Medal, Marjory Florence Mostyn.

Two Paintings of a Head from the Life, 1st Prize (£5) and Silver Medal, not awarded; 2nd Prize, Bronze Medal, Dorothy Fraser Litchfield.

Perspective Drawing in Outline (open to Painters and Sculptors only), "The Corridor of the Schools," Prize (£5) and Silver Medal, Albert Edward Waterton.

Set of Four Drawings of a Figure from the Life, 1st Prize (£10) and Silver Medal, Joseph Greenup; 2nd Prize (£5) and Bronze Medal, Joannes G. A. Pisani.*

Set of Three Studies of Drapery, Silver Medal, Joannes G. A. Pisani.

Drawing from the Antique, Prize (£5) and Silver Medal, not awarded.

Painting from Still Life, Prize (£5) and Silver Medal, Percis Lucy Green. Prox. acc. Albert Edward Waterton.

Model of a Design, 1st Prize (£15) and Silver Medal, no competition; 2nd Prize (£10) and Bronze Medal, no competition.

Two Models of a Bust from Life, 1st Prize, Silver Medal, not awarded; 2nd Prize, Bronze Medal, Arthur Glover.

Model from the Antique, Prize (£5) and Silver Medal, no competition.

Model of a Medal or Coin, "A Head of Mars—obverse; War—reverse," Prize (£5) and Silver Medal, Herbert Harry Cawood.

Set of Three Models of a Figure from the Life, 1st Prize (£15) and Silver Medal, Anthonius G. W. Slobbé; 2nd Prize (£10) and Bronze Medal, Herbert Harry Cawood.

Set of Architectural Drawings, "The Fronts of the two Houses on the north side of Cavendish Square," 1st Prize, Silver Medal, no competition; 2nd Prize, Bronze Medal, no competition.

An Architectural Design, Prize (£15) and Silver Medal, not awarded.

An Architectural Design (First Term Students only), Prize (£10) and Silver Medal, Daniel Roye Lyne.

Perspective Drawing in Outline (open to Architects only), "The Interior of St. Stephen's, Walbrook, Silver Medal, no competition.

*** Disqualified owing to having received the same prize before.**

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Original Composition in Ornament (open to Architects only), Prize (£5) and Silver Medal, no competition.

Architectural Design with Coloured Decoration, "One Bay of the Nave of a Church," Prize (£5) and Silver Medal, no competition.

Landseer Scholarships in Painting and Sculpture, of £40 a year each, tenable for two years, have been awarded —in Painting to Evan J. Walters and Harold Williamson; in Sculpture, to William J. Bloye and Anthonius G. W. Slobbé.

NOTES AND COMMENTS.

ONCE again the question of Glasgow's Tolbooth Steeple is postponed without decision, and this time to that vague period "after the war." At a meeting of the Special Sub-Committee of Glasgow Corporation it was reported that at a meeting with the Commissioners of His Majesty's Office of Works the latter body suggested that, having regard to the present state of the country, consideration of the proposal to remove the Tolbooth Steeple should not be proceeded with in the meantime, and that the Corporation should, under reservation of the rights of all parties, withdraw their notice of November 17, in which they adhered to their previous decision to remove the steeple. The Commissioners explained that under the statute if that notice were not withdrawn they would, in view of the steeple having been scheduled as an "ancient monument," be bound before the 17th day of this month to issue a Preservation Order, which would remain in force for a period of eighteen months, and that if within that period they desired that Order to be made perpetual they would require to go to Parliament, when the question would be fought between them and the Corporation. The Commissioners desired to avoid complicating matters at this time by issuing a Preservation Order, and preferred that the whole matter should remain open for the time being, leaving to the Corporation, if they thought fit under altered conditions in the country, to renew the notice of their intention to remove the steeple. The Commissioners would then consider the question on its merits. The sub-committee agreed to recommend that the suggestion of the Commissioners be adopted, and that the removal notice given by the Corporation on 17th ult. be meantime withdrawn. This recommendation will come before the Town Council a fortnight hence.

The housing question is still troubling and is likely to do so, but it is characteristic that at a meeting organised by the Dublin United Trades Council several of the speakers expressed the view that the action of the Local Government Board and the Treasury in refusing to grant loans for housing improvements in Dublin was another injustice to Ireland. Great Britain is suffering from the same policy everywhere except in munition areas, though it would be difficult possibly to find any locality where the need of better housing is more urgent than in Ireland's capital city, where the report of the Government Housing Commission, held two years ago, proved that the working classes of Dublin were living under conditions that were a disgrace to civilisation. The report showed that 20,000 families lived in one-room tenements, 1,560 families lived in cellar dwellings, and 6,831 families, comprising 22,701 persons, lived in "homes" unfit for human habitation.

In the discussion at this meeting Alderman Thomas Kelly made what we think is the wisest suggestion for Dublin. He said that the citizens ought to find sufficient money to enable the Corporation to carry out the schemes. They saw the rich in all luxury even in this deplorable war time. He had never seen so many motor-cars in the streets of Dublin as now, or so many dogs in women's arms. When the war was over there might come a time when money would be demanded more bitterly from the rich. So it might be good for them in Dublin to provide the wherewithal to house the poorer citizens and provide useful work for the artisans. It might be a precautionary measure that would prevent worse things happening later on.

In a letter to the "Manchester Guardian" Councillor James Johnston advocates the appointment of a special committee for the purpose of considering the desirability of placing at the disposal of the Local Government Board the surplus land of the Corporation suitable for house-building purposes, and of endeavouring to obtain their assistance in financing a scheme of housing on such land to meet the grave shortage of housing accommodation in Manchester.

Councillor Johnston is not correct in attributing the diminution of house building to the Town Planning Act, although it has increased since that measure was passed. The primary reason, as we have before pointed out, is the land legislation of 1909, intensified of course at present by war conditions affecting finance and the cost of labour and materials. The Councillor does well to lay stress on the fact that Manchester is a munition area, and so entitled to the same consideration from the Government as other similar areas, examples of which he gives. The Government themselves at Well Hall, Woolwich, have built about 1,350 houses for the workers on garden suburb lines, and, in addition, they are putting up about 1,000 wooden huts.

The houses are built in blocks of four or six, a considerable number, however, being semi-detached, and the designs are varied, so that not more than three or four are alike anywhere. The size of each plot varies from 16 feet to 18 feet in width, with a depth of about 120 feet. The increased cost of the houses due to war prices is estimated at 20 per cent. to 25 per cent., but the cottages will be let at the same rate as those in the adjoining neighbourhood—8*s*. 6*d*. to 13*s*. 6*d*. per week.

At Coventry the town-planning staff of the Local Government Board has laid out 50 acres of land, provided by the local authority, on which 600 houses will be built. They will be of three types, but each house will have three bedrooms and a bathroom. The total cost will be £188,816, and the Local Government Board will contribute about 20 per cent. of the cost of the houses.

At Newcastle-on-Tyne the Local Government Board has offered to sanction a scheme for housing the working classes at a cost of £152,000, and the Minister of Munitions will contribute about 20 per cent. of this amount if the local authority carry it out, in point of time, to his satisfaction. Sheffield and Dudley are also engaged on housing schemes under similar conditions to the above, but in all cases munition workers are to have the preference as tenants of the houses.

Some interesting correspondence has recently appeared in the "Yorkshire Weekly Post" between John Ruskin and the late Mr. James Verity, of Dewsbury, who possessed a valuable collection of Greek and Roman coins, and was a well-known authority on numismatics. From Mr. Verity he purchased many rare coins, and renewed his old enthusiasm as a collector. The correspondence, which ranged over six years, 1880 to 1886, reveals Ruskin as an eager and ardent student, in ecstasies over Greek and Roman treasures, which revived his interest in art and history; and it is amusing to note how, from time to time, he adjudicated between what he regarded as the proper claims of the Sheffield Museum as "a Temple of the Muses for intelligent study," and his own intense desire to retain for himself any particularly rare or beautiful coin which took his fancy. Whenever possible he obtained duplicates, and thus satisfied both sides.

At the annual meeting of the Association of Managers of Sewage Disposal Works, Mr. W. H. Duckworth, manager of the Salford Sewage Works, contributed a paper giving the results of the experiments carried out at the Salford works in treating sewage by means of aeration.

Briefly summarised the experiments might be said to have proved that purification was possible by an aeration

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with open jets and in much lesser quantities than was at first thought necessary. The experiments also indicated that results might be expected in winter as well as in summer, and that the influence of sterilising substances which played such havoc with bacteria beds generally could readily be overcome. They had been tested on a crude sewage, not very effectively screened, with little detritus settlement, and containing large quantities of trade waste, and the results might be said to have been obtained under somewhat adverse conditions. They were still working with plant designed entirely for something else, which had been adapted with the object of first proving the principle, which, he thought, in the face of the results obtained, must be conceded to have been done.

ILLUSTRATIONS.

"LITTLE CUMBRAE."

This house was designed by Mr. Charles E. Bateman, F.R.I.B.A., for erection on the island of the Little Cumbrae, in the estuary of the Clyde, between the Ayrshire coast and the island of Arran. But the project was abandoned in favour of a scheme for altering some old farm buildings and keepers' cottages and linking them up with new buildings to form a summer house and shooting box. Stone of the island has been used for the walling, with windows and copings of Gourock stone and Caithness stone slates for the roofs.

THE CHURCH OF ST. LAWRENCE JEWRY, KING STREET, CHEAPSIDE, LONDON, E.C.

In his interesting book "London Churches in the Seventeenth and Eighteenth Centuries," Mr. G. H. Birch gives an account of this building whose foundation stone was laid on April 12, 1671. It appears that the church was dedicated to St. Lawrence the Deacon. It derived, of course, the name of Jewry from being near to the Ghetto, or the quarter where the Jews had been compelled to reside, now called Old Jewry. On plan a parallelogram, it consists of a nave and north aisle, separated by columns, and divided into five bays, stopping short of the east end by one bay.

A western tower, not central with the nave but placed a little to the north, is approached by a vestibule. Both the vestibule and tower open into the nave by arches, placed symmetrically, and filled in with beautiful doorways and screen work. Between these doorways the organ with its superb case stands on a raised loft supported by Corinthian columns. The whole composition of organ, loft and doors is one of the richest specimens which the woodworker's art of the seventeenth century produced, and is unsurpassed by anything else of the kind Wren did.

Northward of the tower is the vestry, panelled in oak and decorated with festoons and wreaths in high relief. This room, with its panellings and rich plaster work and paintings, is widely known as a most perfect specimen of the art of the period, equal to anything at Hampton Court or Windsor Castle, and there is considered to be but little doubt that the carving here is really from the hand of Grinling Gibbons.

The east front, facing the Guildhall yard, is rather more pretentious than the south side, and has a colonnade of four Corinthian columns supporting a well-proportioned entablature, which is carried on only to the angles of the building, and is supported by angle pilasters. This colonnade and entablature is terminated by a pediment pierced with a circular window, and finished with a cornice and parapet, which is carried all round. The two windows are filled with modern glass, and between, and at each side of these windows, are round headed niches, and above these and the windows are swag wreaths of foliage.

The measured drawing and sheet of details which we reproduce were made by Mr. Albert R. Fox.

FROM MANSION TO MAISONETTES.*

By Herbert Freyberg, F.S.I., M.S.A.

The expression "Mansion" seem to imply a building at once extensive, and certainly as regards management and accommodation, one which is unwieldy. This must be taken in a relative sense, and to mean that in this case there are more rooms, more floors, and, above all, more stairs than are necessary for the occupation of the premises by the class of tenant likely to be obtained in the particular district.

The neighbourhood and its advantages, or the reverse, are, therefore, so much a dominating factor that unless this is fairly studied to start with, a satisfactory result can scarcely be hoped for.

It has been urged that conversion of houses into maisonettes tends to lower the tone of a residential district, but surely it is far better to have two small families of good position in a residence rather than the omnium gatherum crowd which usually occupies the average boarding-house, and that, with a large residence, is often the only alternative.

The causes tending towards the disuse of the larger town residence are several, and comprise:—

1. The bigger staff of servants required.
2. The increasing difficulty in securing efficient servants and retaining them when secured.
3. The unlimited liability entailed by strict repairing covenants on the part of the lessee, more particularly as regards structural and external works.
4. The general shrinkage of middle-class incomes, coupled with the increased cost of living.
5. The influence of the ever-present motor-car, and the not unnatural desire for a little place in the country in which to spend week-ends.

As none of these factors are likely to be of less influence in the future than in the past, it follows that the single occupation of the larger town residence is likely to become more and more a negligible quantity.

Nursing-homes, private hotels, boarding houses, and clubs already exist in numbers greatly in excess of the general requirement, and no increased demand in that direction is either likely or desirable.

The occupation of a single residence by more than one household has been tried in my own experience, and sometimes friends, and even relations, have been known to live together without any serious unpleasantness; but only people who can keep their tongues well under control, and can ensure their servants doing the same, should venture on this experiment.

Few, if any, residences are constructed so as to adapt themselves without any alteration to this nature of occupancy, and even if the domestic offices are so arranged, the use of a common staircase, with doors opening directly on to other people's rooms, does away with privacy and increases the chances of friction, especially where the lower rooms are concerned.

"Be friendly with your neighbour, but don't remove the hedge," is a piece of advice as applicable now as when it was first given, over three centuries ago, by one who evidently had learned, and was therefore determined to profit by his own experience. The need of a domestic ring fence is too obvious to require elaboration.

When the property has the disadvantage of being leasehold, the bearing of the covenants must be considered first of all; in most cases their trend will be both to prohibit the alteration of the building into what may, for the purpose of our paper, be deemed to be two or more separate tenements, and to prevent the premises being used other than as "a private dwelling-house only." This is a detail which must be dealt with before any alteration is attempted, or trouble is likely to ensue.

Patience, perseverance, and politeness are required in making applications for consents of ground landlords, and issue of their licence, and, although one cannot grudge the payment of a reasonable professional fee for the services entailed, one does complain of time so often wasted before the necessary consent is obtained.

* Abstract of a Paper read before the Society of Architects on December 9.

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While it seems only right that the freeholder should not be put to any costs in the matter, it does not seem fair to me that an increase in the amount of the ground rent should be made one of the conditions of the licence. That, so far as I know, is only prevalent on a few estates —fortunately very few. Of course, if an extension of the term were granted at the same time, no one would object. An unfortunate leaseholder often cannot use the property for the purpose for which it was originally intended, owing to conditions over which he has no control, so he should not be charged extra rent for being allowed to adapt the residence to the altered conditions of the surrounding neighbourhood.

Another condition which is sometimes insisted on is an undertaking required from the lessee to reinstate at the end if called upon; a condition which, with a trust lease, benefits no one and puts a blot on the title.

It is rather a doubtful advantage for detailed drawings to be embodied in the licence until the works are "completed to the satisfaction of the freeholder's surveyor," as various improvements suggest themselves as the work proceeds which can be shown on the plan attached, and the record thus made more complete.

A freehold generally gives a free hand, but we most of us know the particular instance where this was not the case, but the position and surroundings were exceptional and the grants of the freehold subject to particular covenants.

With an ordinary freehold the owner of the fee simple has no one to consult but his own professional adviser, coupled with a study of his neighbour's rights and convenience.

This is a most important matter to deal with and must be faced at the outset. Under the London Building Act, so long as the suites do not exceed either a given area or are not more than two in number with a user in common of the street door, they are not treated as new buildings within the meaning of the Act, which means a considerable saving of what might be a big expenditure on making floors and staircases what are called fire-resisting. Proper means of escape in case of fire are, however, very properly insisted on and are generally easy to provide.

In a recent case at a well-known seaside town the contention was raised by the local authority that the alteration of the residence into two maisonettes made them new and separate buildings, but although this general principle was sought to be established, the requisitions made by them were scarcely consistent with that contention.

An inquiry as to the principle upon which the particular local authorities administer the rule as to rateable value before and after alteration is most advisable, as in my experience their practice has varied considerably, and in some cases has not erred on the side of equity. To take a concrete case; a residence which had an original rateable value of £75, so that when it was occupied only produced about £25 in rates, was, after alteration, increased in rateability by the local authority, with the result that nearly £45 per annum was levied on the unfortunate owner. The action of this particular local authority was by no means encouraging, and to my mind was very shortsighted, as while the unconverted houses always had a large percentage of empties, the maisonettes, if properly altered, were seldom or ever without an occupant. Owners in this particular borough naturally hesitate before embarking on a scheme where the cream of the revenue is taken by the local authority.

The question of cost is a difficult matter upon which to express an abstract opinion, as the outlay for adaption is influenced by many considerations, the most important one being the original condition of the premises. A rough rule of thumb to apply to the structural alterations pure and simple is to calculate that it will never be less than one-fourth and it may be as much as one-half of the first cost of the original structure.

The necessity for partial or complete reconstruction of the sanitation is a matter which can only be judged by the individual property. In any case this important detail must be rendered above suspicion.

Hot water supply will most likely have to be new throughout, while a system of central heating in some cases will be required as well.

Electric light even if already installed will have to be separated into two systems, and the same will apply to the gas supply, which is a most important detail both for cooking and heating.

A certain number of chimney-pieces and stoves with tiled hearths will usually have to be provided, certainly for the reception rooms.

The decorations will have to be new throughout, and stinting the coats of paint will be found to be false economy, while good wallpapers always attract by giving the finishing touch.

One detail which it is almost impossible to be too generous upon is the provision of cupboards, because flats, with which maisonettes have to compete, seldom have more than one, or say two if the space in which the servants sleep is included.

In these days of scarcity of timber, every scrap of sound joinery should be preserved and refixed in fresh positions; doors and frames, architraves, windows, panels, skirting-boards, &c., used in again will not only keep down expense, but provide a more seasoned article than stuff newly put together.

The most important problem, and certainly most difficult, is that of the stairs, for I hold that the hardest task an architect is ever called upon to perform is to alter an old or provide a new staircase to an existing building. Like everything else in life, the simplest plan is the best, but inspiration does not always respond immediately to invocation.

As soon as the architect has solved the staircase difficulty, and later on I shall return to this question, the next most important problem is to plan the sanitation, so that, while the Public Health Acts are followed, convenience of arrangement is studied and the whole system so designed that pipes of all description are of the fewest as regards numbers and the shortest as regards length.

In most cases some strengthening will be necessary to the floors, especially of the original bedrooms, which are now to be changed into sitting-rooms, as what is strong enough for a bedroom with its comparatively light and scanty furniture and certainly few occupants, is not necessarily strong enough for a sitting-room with, say, a metal-frame piano, book-cases, heavy books, weighty tables and chairs, and, at times, possibly a dozen visitors, the latter a moving weight.

Another matter which may require attention is the conversion of a room into a habitable apartment which before could only be legally used as a store or box-room Any reasonable outlay in this direction should be a profitable investment where increased accommodation is effected. Where the basement is not too extensive, and possesses the advantage of being light and airy, it can be often included in the lower suite, which would then comprise the first, ground, and basement floors. This, however, has the disadvantage of possessing three flights of stairs, but as the suite is entered on the central floor and by including the first floor, the basement can be given up to the domestics, it does not so much matter. The planning on three floors generally means more domestic service, and therefore two servants; so one of the advantages of compact planning is at once lost. The best plan of all is no doubt to ignore the basement, or at least the greater part of it for letting purposes; and retain it for a residential caretaker, with provision for central heating and continuous hot water.

This arrangement allows the lower suite to be entirely planned on two floors, while the upper suite can be arranged similarly on the same number.

The accommodation appealing to the larger number of people comprises four bedrooms, bathroom, two w.c.'s, two reception rooms, kitchen, scullery, &c., and in many large houses of five floors it is possible to get this accommodation contained both in the two lower and

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two upper floors. Every inch of space must be utilised, and there must be no dark corners.

Economy of working must be the watchword, and every detail arranged with this end in view.

With central heating and radiators in the principal rooms, and auxiliary gas stoves, the labour and dirt of fires can be reduced to a minimum.

With continuous hot-water supply the cumbersome range with its extravagant fire is not required, as a gas cooker is all that is necessary in summer, while the smallest and most economical of grates can be used as an auxiliary in cold weather.

Lavatory basins with hot and cold water supplies save much unnecessary work in bedrooms, and provide greater convenience.

Electric light is so well known as to need no recommendation.

Tradesmen's lifts to the upper suite obviate many difficulties, and they should, if possible, be made accessible from a special back-door entrance.

One of the most important features is that the entrance should be impressive, and therefore sufficient space must be given up for the outer hall, entered through the street door, and from which the two doors lead to the respective suites.

The arrangement of the staircase usually has to depend largely upon the original planning of the house, but the smaller the interference with existing stairs (providing they are well arranged), the better the effect and the smaller the expenditure. In some cases, however, nothing but a clean sweep will give satisfactory results.

So many alterations of a residence into so-called maisonettes merely amount to the enclosure of the ground floor stairs, generally by a match-lined partition, with a door at the foot. This is merely dividing the premises into a couple of tenements, the upper one with three complete sets of stairs, and therefore having all the disadvantages of a house with none of the conveniences of a maisonette, while the lower tenement comprises the ground floor and the basement with inconvenience of arrangement so palpably in evidence that this suite, which should produce the larger return, is often empty and never commands a remunerative rent.

For a very much lower rent the resident can live in a much better neighbourhood than he otherwise would be able to afford, his payments are inclusive, while his liability for repairs is strictly limited and easily calculated.

In comparison with flats, the rents are from 50 to 80 per cent. less, the accommodation is not only much better in every way, as nearly, if not all, the rooms have a bright and open outlook, instead of facing a blank wall in a central area, as is the case in so many flats.

There is more privacy, as the stairs are in each case used only by the particular tenant, while, if there is central heating, continuous hot water and a resident caretaker, all the advantages are on the side of the maisonette.

In taking this into account, the price that the existing building would fetch in the open market (not what it originally cost), should be added to the cost of the alterations, and the total treated as capital outlay upon which to reckon the rate of interest returned.

The outgoings on a freehold property comprise: (1) Borough rates; (2) water rate; (3) inhabited house duty; (4) caretaker's remuneration; (5) fuel and sundries; (6) external and structural repairs; (7) insurance.

The first two depend on the rateable value, and the rates current in the district, the third upon the amount of gross value.

The outlay under 4 and 5 should be calculated and charged to the tenants, while to provide for the latter item a certain amount should be put away every year to form a fund available for periodical external repairs.

As regards internal repairs, the suites should either be redecorated by the tenants on leaving, or an agreed sum paid by them in lieu thereof.

In properties which I have dealt with, and shall describe in greater detail, it must be assumed that while the neighbourhood is eminently good and respectable, a fashionable part of town like Mayfair, or even Belgravia, is not alluded to, but rather Kensington, Bayswater, Chelsea, &c., so that the possible tenants although of fair position would be of limited means, of incomes from, say, £500 to £700 per annum, a rather numerous class who find each year greater difficulty in getting comfortably housed than the much subsidised working man with the buildings where rooms are to be rented upon uncommercial terms.

The £500 to £700 class have had their houses pulled down and replaced by mansions, if not palaces, so that small houses in really good positions fetch rents out of all proportion to their real value, and are therefore prohibitive as regards terms and tenure to this class of tenant.

In regard to buildings already altered and results so far obtained, these carried out as designed by me comprise buildings in various localities, and practically for all sorts and conditions of men, ranging from semi-slum neighbourhoods to a fashionable watering place, and in most cases the two-floor principle has been adhered to, although the working-class maisonettes were confined to one floor each, while those over shops had to be arranged on three.

In all cases the works were carried out in the best possible manner, and where the owners have been sufficiently far-sighted to keep them up to the original standard, the rents have been sustained, but where repairs have been neglected the rents have correspondingly fallen. That applies to all property of a residential class, and is often the reason for the deterioration of a neighbourhood.

For purposes of comparison in judging the property from this standpoint, certain points must not be overlooked, viz:—

(1) The present market value of the property unaltered.

(2) The outlay required to put it into complete structural, sanitary and decorative repair, in order to secure a tenant in one occupation.

(3) The sort of tenant likely to be obtained, the amount of rent and conditions as to repairs.

As an illustration, say, a five-floor residence with some eighteen rooms in a neglected condition, and requiring immediate expenditure of some hundreds to put it into order as a single dwelling, will only realise for the fee simple in its present condition, say . .	£800
but requires an immediate expenditure on structural repairs, new sanitation, hot water, electric light, new decorations, &c., costing, at present rates, say . .	450
	£1,250

when complete will let at, say, £100 per annum on a three years' agreement, which, on paper, appears a very good return, but, when, as each tenant vacates, a loss of six months' rent is entailed ere the property is let again, and partial, if not entire, redecoration has to be faced, the nominal 8 per cent. is reduced to 4 per cent., and that with much trouble entailed.

Now take the property remodelled:—

Original value of fee simple of the property in bad order, say	£800	
Less costs of sale	30	
		£770
Cost of Works.		
New staircase, new partitions, additional windows (with prismatic glass), new ceiling, roof, &c., turning a room into a habitable apartment, provision of escape from fire, steelwork necessary for strengthening upper floors, also 6 in. of concrete over basement with wood block floors	£480	
New sanitation, complete with fittings . .	220	
System of heating with radiators, hot-water supply, and certain new stoves and chimney-pieces	200	
Installation of electric light with fittings complete, and electric bells	90	
New gas services, heating and cooking for two flats, and lighting and heating for caretaker .	20	
Internal decorations	160	
Cupboards and fittings	50	
External repairs and painting	70	
General and sundry work	40	
		1,330
		£2,100

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These figures are not theoretical, but practical, having been taken from some works just completed at a large house in Brunswick Place, Hove, and are for works carried out in the most efficient manner, the hot-water supply and heating arrangements, electric light, &c., being installed by firms of high standing. The first item included not only the new plastering, but also new cornices of good design in the Georgian School, a detail which amounted to a very large proportion of the structural outlay.

Now take an estimate of the return:—

Upper suite, say		£90
Lower suite, say		110
Charge for partial service of caretaker and cost of fuel, say		52
		252
Borough rates, water rate and inhabited house duty	£48	
External repairs	15	
Allowance to caretaker	16	
Expenses of management	5	
Fire insurance	2	
Fuel	18	
		104
		£148

which shows some 7 per cent. upon the cost, or allowing for empties, and taking into account the outlay on architect's fees, means a return of between 6 and 7 per cent.

There are, no doubt, many other methods besides those I have mentioned, and if the expense warrants the outlay, and the property comprises more than five floors, and provides for more accommodation than is required in two suites, a third or fourth suite can be arranged with the provision of a self-acting passenger lift. In many large houses the ground floor has a height of some eleven feet or more, with twelve feet on the first floor, and ten feet on the second; and as the thickness of the floors is generally at least 12 inches in depth, it will be found that with the alteration of the windows and the fireplaces, and the substitution of a ferro-concrete for timber floors, one extra floor of rooms, 8 feet to 8 feet 6 inches in height can be worked in, while an extra storey in the roof can also be arranged at the same time, and so very great addition made to the existing accommodation.

I have carried out this arrangement in transforming an old-fashioned hotel into a block of self-contained residential chambers.

I feel that by advocating such sweeping changes and elaborate improvements, I am laying myself open to the charge of extravagance, but it must be borne in mind that what in some districts would amount to reckless expenditure, would in others simply amount to a remunerative outlay without which a satisfactory return could not be looked for.

The question, therefore, as I said at the opening, resolves itself into one of neighbourhoods (by neighbourhoods I mean position, outlook, general environment), and I should like to impress upon my brother architects, especially the younger members, the urgent necessity for keeping themselves up to date, as regards this important detail, for even a few hundred yards may make all the difference between a wise outlay and an unremunerative expenditure.

ENGLISH TIMBER.*

By MARTIN COLLIER DUCHESNE, F.S.I.

IN this paper I wish to emphasise once more the importance of the organisation of our native timber supplies. I hardly need remind you of the strangely anomalous position of our native timber. Although we have one of the largest markets in the world in our midst, in some cases with tempting prices ruling, the demand and prices offered for our native oak—admittedly the best in the world—are extremely poor. It is a ridiculous fact that there are instances of English oak being sold as "Austrian oak," and our best Scots pine as "best foreign reds." Another curious anomaly is that, though architects and others in London wish to specify English oak for panelling and other work in building, scarcely a merchant in London is interested in pushing the sale of English oak for these purposes, so well organised and far-reaching is the marketing of foreign oak. Stranger still, although every one admits the unsatisfactory nature of the position, no one suggests any remedy, and whoever makes an effort to improve matters experiences in many quarters not merely apathy but even hostility. Much of the apathy and opposition to new proposals, however, is due to a failure to grasp exactly what these proposals are, and also a failure to appreciate fully the position into which we have drifted.

CHANGES IN MARKETS FOR TIMBER.

It is difficult to make people realise how greatly our markets for timber have changed during the past forty years. Before this period, with almost the sole exception of oak for the Navy—which was *then* one of the only "wide" markets, but whose exact requirements were known to all—our timber was sold to the local timber merchant mainly for his local trade, and was converted for the requirements of the local builder, wheelwright and other local tradesmen.

It is common knowledge that foreign timber has displaced native for nearly all local purposes. Timber used for building is now almost all foreign, and American spokes are purchased even by local wheelwrights, much of whose trade, however, has passed to the large firms of agricultural implement makers. It naturally follows that the proper markets *now* for our timber are with these large firms and in the large industrial centres.

It follows also that with new markets we must adopt new methods of marketing. The old methods, which might have been quite satisfactory formerly and under old conditions, may be quite unsuited to present-day requirements. Methods and practices suitable for marketing oak for the Navy, for local tradesmen, or for small consumers, require considerable alteration when one has to deal with the different classes of purchasers who now consume the timber. We now have large consuming firms who are fully informed as to the foreign supplies and are able to take fuller advantage of these in competition with the native timber. In the rush of modern business they are not prepared to take the same trouble in securing distributed supplies as were the old local consumers.

The existence of much-advertised and easily obtainable foreign timber makes it to-day more important than ever to cultivate the customer, and to market the timber in the form and character that he requires, so as to save him trouble. Modern machinery and modern methods of conversion necessitate methods of marketing quite different from those prevailing in the days of the old hand-sawyer.

It must follow also that with wider markets we must have wider knowledge of these markets and their requirements, and how to supply them. We must also grasp the commercial uses of timber, and know the special properties, advantages or weaknesses of the different classes, and how far our native supplies can compete with foreign. Foreign timber has the great advantage of organised marketings on a large and up-to-date scale and the backing of concessionaires and even governments, who spend large sums in advertising and pushing sales by every means possible. In many cases cheap transport and other facilities or properties possessed by a particular class of foreign timber render it impossible to compete with such timber for various purposes. Moreover, many of the finer foreign timbers, such as mahogany or teak, are eminently suitable for special trades, so that it would be obviously absurd to compete with them. But in the case of oak, ash, beech, elm, larch, &c., there are unlimited markets for which our native trees are even more suitable than imported trees of the

* Abstract of a Paper read before the Surveyors' Institution, December 12.

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same species. To improve the demand and prices for these native timbers it is, therefore, necessary to organise the marketing to reduce expenses, and especially to render the timber readily obtainable by the consumer in the quantity, size, and nature required. Native timber must be as easily procurable as are the well-organised foreign supplies. We must also copy the foreigner, and advertise and push the sale of our timber, using our influence to ensure that, where it is suitable and available for a purpose, it shall be specified; and educate the consumer as to its valuable properties. I do not say we need emulate the American who, by inference, often suggests qualities which his goods cannot possibly possess. But we can quite honestly emphasise those valuable properties of our native oak and other timbers so universally recognised before the invasion of the foreign, and still admitted by experts. Unlike many untried or newly-introduced foreign timbers, our native woods have stood the test of centuries.

With these large markets available, the problem is how best to take full advantage of them. The most essential condition is organised marketing.

Before entering into detailed suggestions, however, we must deal with some special handicaps from which we suffer:—

1. The small and distributed nature of our supplies and the mixed character of our forest produce.

2. High railway rates and cost of hauling, aggravated by the wide distribution of our supplies.

3. The entire want of enterprise and lack of capital in the English timber trade, many of the best and largest merchants being now interested solely in the foreign trade.

4. The lack of organised effort on our part to overcome difficulties.

5. The failure to see that the position is capable of improvement.

I do not wish to exaggerate these handicaps, but it is important to take them into consideration, and I refer to them later. I will first make a few detailed suggestions, especially to explain what I mean by "organised marketing."

It is difficult to narrate details of the marketing of each variety, and, and since the most urgent question is the satisfactory disposal of *Oak*, I will treat this timber fully and the others more generally. Please note, however, that I am dealing with the matter broadly, and it will depend upon the quantity and character of timber in any locality how far my remarks will apply to any particular district. I deal with the War under a separate paragraph, and my arguments and prices apply to pre-war conditions.

Markets for English Oak.

We may divide the markets for oak into three classes, according to the size and quality of the trees:—

1. The first class covers the largest and best trees, suitable for quartering, for which purpose diameter is important, but length of butt is not necessarily required. Omitting artillery spokes and other special war requirements, the best market for these trees in normal times is for panelling and for the numerous requirements of the building trade. The oak most generally used for these purposes is Austrian oak; but it is admitted on every hand that, although Austrian oak is softer and easier to work than English, and therefore preferred by joiners, yet, as regards colour, figure, and other important features in panelling, English oak is unequalled. The price of Austrian charged to the builder for 1 inch seasoned boards before the War was at the rate of 10*s*. per cubic foot. Panelling made of English oak is usually priced higher than Austrian.

In spite of the cheapness of the timber in the log, the native panelling is looked upon as a luxury, and surely this fact alone proves its superiority. A large contractor once told me that English oak in 1 inch seasoned boards usually cost him as much as the best Spanish mahogany. Only the best butts of oak of good diameter are suitable for quartering; after conversion the timber must be properly seasoned. Winter-felled oak is preferable. Artificial seasoning is now becoming more general, many of the old objections and difficulties having been removed by increased knowledge and experience. The urgent demand in this War for seasoned oak, ash, &c., has led to many additional timber-drying plants being laid down in the provinces. Even with natural seasoning it does not take long to season a 1 inch oak board after it has been converted from the log, which should have been felled twelve months before conversion. On the usual assumption of one year's seasoning to 1 inch of thickness, this would mean for the 1 inch board a minimum of two years from the felling. Some might think a little longer seasoning advisable if artificial methods are not resorted to, but a very short time is necessary with the best modern artificial drying plants. The results are quite satisfactory, and I would point out that nearly all the much-advertised foreign timber is seasoned by these modern methods. The ancient prejudices against artificial seasoning of oak were due to the inferior results given by experimental stages. Again, objections that might be raised against seasoning oak artificially for shipbuilding or similar special purposes need not apply to timber required for panelling or interior work, or used under conditions which entail neither strain nor exposure to weather.

Turning to the price. I think you will agree that, after allowing liberally for waste, cost of felling, hauling, transport, conversion and seasoning, the price which the producer receives for the standing oak tree differs ridiculously from that paid by the contractor for the same timber in 1-inch boards.

Much Austrian oak has been used for panelling and similar purposes, and there should be in the future a sufficient demand for all the English oak we can offer, provided the demand is cultivated and the market properly organised. Unfortunately this class of oak is now converted for inferior purposes.

2. The second class of oak is the coppice-grown oak averaging 25 to 50 cubic feet per tree, for which the present largest outlet is the wagon and carriage departments of our railways. This is cultivated by English timber merchants, who have to compete principally with the white American oak, or, in some cases, with Russian oak or even Australian woods. The oak is converted into wagon scantling, and the price varies according to size, quality and specification; but we may assume an average figure for the converted timber of, say, 3*s*. 6*d*. per cubic foot. Thanks to the great superiority of English oak for this purpose a far wider demand should be possible at considerably enhanced prices, if united action were taken to encourage it and improved methods of marketing were organised. Owing to the ease with which the foreign oak can be obtained and the greater trouble caused to the railway officials by the native timber, there is a prejudice against the latter, but it is absurd that native oak, much more valuable for this purpose, should invariably be priced at the same figure as the foreign.

3. The third class of oak comprises the small trees of under 20 cubic feet, which, on account of small size, large proportion of sapwood and to the high railway rates, should be converted principally locally. There should be ample room for increasing the demand for this converted oak in the great wood-consuming centres, where enormous quantities of oak are used. Many local markets also could be cultivated to a far greater extent than they are, such as gates, fencing, building fittings, repairs, and local requirements generally. Native timber could be used to a far greater extent in the district in which it is grown.

There are other outlets and uses for oak of various sizes and quality in London and other centres at correspondingly diverse prices, ranging from the high-priced Austrian of best quality to the various classes of American

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oak at prices ranging from 3*s*. 6*d*. to 6*s*. per cubic foot for converted sizes. The lowest is probably American window-sill oak at about 3*s*. per cubic foot, in which a proportion of sap is allowable.. There has been an increase in price of nearly 5 per cent. since 1885 on lower classes of imported oak and also a decrease in quality. Much of our English oak might be suitable to replace these foreign grades, but the cost of marketing must determine what can be done in each instance, and competition might not be practicable in all cases. As I have shown, the present consumption of oak of all sorts is enormous. The imports of oak—exclusive of staves and parts—in 1913 exceeded 12½ million cubic feet. As the demand improved and the market became better organised, we might expect to find plenty of scope for all the native oak we could offer.

One of the staple objections taken to English oak is that it is harder than foreign. This should make English oak the timber par excellence for wood-block flooring—to name but one use in which such a characteristic is a recommendation. Yet, in spite of the large and increasing demand for wood-block flooring at good prices, there never has been any serious attempt to capture this and similar markets for English oak, and the softer foreign oak holds the field.

These are only a few out of many directions where the conditions, possibly unfavourable twenty years ago, are now propitious to successful competition by the native produce. We must, however, instil enterprise into the native trade and surmount the difficulty of capital. We must also assist by organised marketing and regular supplies of the necessary timber, and do everything possible to cultivate the demand for the native produce. There are many other existing and suggested outputs for oak, but the above must suffice as an illustration.

METHODS OF MARKETING.

Having pointed out improved and proper outlets for our timber, it is now important to consider what is the most practical method of catering for these markets which lie open before us, and how we can take due advantage of these wider opportunities.

I will again take oak as an illustration, although similar arguments will apply to other timbers. The exact methods will depend on locality and character of timber.

We must appreciate fully all the existing conditions relating to the marketing of timber, and must shape our policy accordingly. In some cases it will be practicable for large merchants to purchase the timber standing, and arrange all details as to marketing. Facilities are necessary for estates to get in touch with such firms, and also to enable a firm to purchase timber from several estates in a district. In other cases large merchants and firms in London and other centres might require selected parcels limited perhaps to one variety. It might be difficult also for them in some cases to send teams and tackle for hauling, or gangs for felling, or to inspect small and detached parcels.

We all wish to assist any honest and old-established local firms who have dealt with estates for a number of years, and whose principal business fault, perhaps, is an old-fashioned conservatism, or want of capital. The local firm has knowledge of local conditions and of felling and hauling, and can convert the smaller classes of trees, but it is want of capital that limits its trade.

I think it will often be best for the large firm at a distance to act in conjunction with the local firm, the latter felling, hauling, and dealing with mixed parcels, and the former storing, marketing, and cultivating the demand for the timber. For instance, the London or other large firm would purchase the first class of oak to which I referred, delivered on rail. The same principle might apply to ash, beech, and other classes of our timber. The local firm also, to a far greater extent than at present, could convert to the requirements and specification of the large firm in the consuming centre. Markets should be organised between producing and consuming centres, so as to reduce expenses, railway charges especially.

I am not wishing to prejudice the trade and output of the local firm. There are many directions in which this might be encouraged or developed. And I appeal to landowners and land agents to specify native timber wherever possible. My object is to take advantage of those more lucrative markets to which I have made reference, but which at present are not developed for want of organised marketing; especially to encourage large firms who now deal so exclusively with imported timber to take up the marketing of the native timber and introduce capital, enterprise, and knowledge into the native timber trade. My object is also to organise marketing so as to eliminate unnecessary profits caused by the timber passing through so many hands.

A small amount of English oak is sold in spasmodic quantities somewhat on the above lines at present to a few large firms who have occasional inquiries for the timber. These inquiries are due to a few architects and other consumers who absolutely insist on English oak being supplied. No attempt, however, is made to deal with the problem on an organised and large scale, or to cultivate the demand for the native timber.

I have already detailed the handicaps with which the native timber has had to contend, and it is not necessary to explain the reasons why these better markets have not been cultivated. It is due principally to a succession of unfortunate conditions and influences. The architect and consumer complain of the difficulty or impossibility of getting the timber, and of there being no firm generally known to stock it. The contractor and builder inform them that supplies of English oak are not available, and persuade them to accept the readily obtained foreign timber. The large merchant says he is not asked for it, and the local merchant complains that there is no demand for it. And so one works round and round in a vicious circle.

The only method of dealing successfully with this problem is that an influential independent body should take up the matter and organise supplies and demand on proper lines and on an extensive scale. This is to be done by the English Forestry Association, who have formed a special committee to deal with the question, and on which committee this Institution and other bodies are represented. It is to the interest of all sections that this work should succeed, and to the prejudice of nobody, and, in view of the importance of diminishing imports and encouraging native supplies, I trust that everyone will render all possible co-operation and help.

I have taken English oak as an illustration, but I do not think there is any country whose native timbers and native industries experience so deplorable a lack of encouragement as our own. It is typical of the present position that our finest brown oak has to be exported to America to be appreciated, and that the high prices paid are due entirely to the foreign demand, to which the present consumption is almost wholly limited.

I believe that with organised marketing and proper encouragement there are outlets for English oak and other native timbers abroad, particularly in America and some of our Colonies, and I hope, in the future, with our present Allies. Let us hope that in the rebuilding of public buildings, churches, and large residences in Belgium and France the world-famed English oak shall find a place, if only as a memento of the war in which the nations have jointly shed their blood. What reminder could there be more typical of England and of the far-reaching influence of the British Navy, whose glorious history was founded on English oak?

As regards timber other than oak, I shall hope to publish information and suggestions elsewhere, since I cannot explain fully here. After years of careful investigation it is my opinion that given organised marketing, increased demand and improved prices are possible for nearly all kinds of native timber, and hardwoods particularly.

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Replacing Imports.

We all welcome suggestions for extending the use of native supplies and displacing some of the imported timber, but I think that undue importance is often given to coniferous timber (larch excepted) to the exclusion of our relatively more important hardwoods. By providing native Scots pine for the Forestry Building at the Shrewsbury Royal Show and otherwise advertising it, I have tried to encourage its extended use, and have organised supplies of it for creosoted boards and other estate purposes. I think, however, that as a general policy we shall have a far better hope of success if we concentrate most of our energy on extended uses of native hardwoods. There is ample room for these woods in place of imported varieties of similar timber, and as a substitute for such timbers as hickory and some of the finer foreign timbers. I would go even further and advocate that, given enterprise and proper encouragement, we could with native goods displace some of the wood imports that arrive in a finished or partially manufactured state. I hope that far greater attention and encouragement, especially by consumers and the public, will henceforth be given in this direction.

Taking all the facts into consideration, I think it will be agreed that it should be easier for English oak to compete with Austrian or American oak for building or other trades than for much of our native Scots pine, as at present grown in English woods, to compete with first, second, or even third Archangel. I would point out that our hardwoods are more plentiful and important; they are generally of comparatively better quality and possess superior characteristics; being higher priced, they can bear more cost in transport, and for many purposes length or freedom from knots is not so vital. Moreover, imported hardwoods usually have higher freights to pay than the nominal return freights which the large Baltic supplies enjoy.

I think therefore that, speaking generally, most of our present supplies of native Scots pine timber would be better used for sleepers, wagon battens, fencing, and many colliery requirements than if converted into scantling or building timber.

THE ARCHITECTS' AND SURVEYORS' APPROVED SOCIETY.

The annual general meeting of the Architects' and Surveyors' Approved Society was held on Tuesday, December 7, 1915, at No. 18 Tufton Street, Westminster, S.W., when Mr. Ernest Newton, P.R.I.B.A. (retiring President of the Society), occupied the chair.

Mr. F. R. Yerbury (Secretary) gave a statement of the progress and work of the Society as follows:—

The Architects' and Surveyors' Approved Society completed its third year on July 3, 1915, and members will be gratified to learn that it still maintains its successful course.

Approximately there were on July 3, 1915, 1,800 members of the Society, of whom thirty-six were women. These figures show an increase of 100 during the year; which, having regard to the general dislocation of business in the architectural and surveying professions consequent upon the war, may be considered as very satisfactory.

Much, however, can still be done by personal recommendation to increase the membership. Now that most of the many difficulties have been overcome which were experienced by this, in common with all other Societies in the early days of the National Insurance Act, and the evidence which this report gives of the Society's sound financial position, members should have an easy task to convince fellow-members of their professions of the wisdom of associating themselves with a Society which is carried on exclusively for their benefit.

The Committee is now enabled to place before members the accounts for the first eighteen months of the Society's working as passed by the Government Auditors, and following upon the practice of previous years it has appended to this report a provisional income and expenditure account for the past year.

It will not be possible to ascertain definitely the exact financial position of the Society until the official Government valuation has taken place. This valuation, which became due when the Insurance Act had been in force for three years, will no doubt take place shortly, and the Committee confidently anticipates that an extremely satisfactory state of affairs will be revealed. In the meantime, members will be pleased to learn that the Society has investments to its credit amounting to £2,140, £700 of which consists of new Government 4½ per cent. War Loan Stock.

The claims paid by the Society during the year have been as follows:—

Men.	
Sickness Claims	96
Maternity Claims	48
Disablement Claims	4
Women.	
Sickness Claims	6

The amount actually expended on sickness and maternity benefit during the year has been considerably below that allowed for by the Government Actuaries.

At the present time there are over 600 members known to be serving with the Forces, and a very large percentage of these hold commissioned rank. From the Committee of Management, Messrs. Maurice E. Webb, C. T. Steward, W. G. Newton, and H. A. James are serving.

It is with the deepest regret that the Committee records the deaths of five members on active service. An expression of sympathy on behalf of the Society has been communicated to the relatives in every case.

The Benevolent Fund, which is supported by contributions and annual subscriptions from honorary members, has fortunately had no great calls upon its resources, but it has been able to render some really valuable assistance to certain members in urgent need of it.

Mr. Philip E. Webb (who is retiring from the office of Treasurer on account of his enlistment) spoke on the financial position of the Society. This, he said, was clearly shown on the report, and he was sure everyone would agree that it was entirely satisfactory. The administration expenses were still well below the actuarial estimate, and the accounts for 1914 showed an additional saving of £30, making a balance of about £88. He was pleased to say the sickness benefits were still low, a third of the total amount paid in benefits being on behalf of maternity claims. In conclusion, he expressed the Society's thanks for the work done by the Secretary, Mr. Yerbury, and the Assistant Secretary, Miss Double, A.F.I., to both of whom the Society owed a debt of gratitude.

Mr. Ernest Newton moved the election of the Committee of Management, as follows:—

Chairman, George Corderoy, F.S.I.

E. H. Blake, F.S.I.; C. MacArthur Butler, F.C.I.S.; A. G. Cross, F.S.I.; Ralph Ellis, F.S.I.; H. M. Fletcher, F.R.I.B.A.; A. Goddard; George Hubbard, F.R.I.B.A., F.S.A.; H. A. James, B. Marr Johnson, F.S.I.; R. G. Lovell, A.R.I.B.A.; Ian MacAlister, B.A.; E. C. P. Monson, F.R.I.B.A.; W. G. Newton, M.A., F.R.I.B.A.; Herbert Passmore, F.R.I.B.A.; F. R. Priest; G. Reeves; Clifford T. Steward, F.S.I.; H. W. Virgo; Maurice E. Webb, M.A.; Philip E. Webb, A.R.I.B.A., and H. D. Whitham.

Treasurer, H. D. Searles-Wood.

The motion was seconded by Mr. George Reeves and carried unanimously.

Mr. George Corderoy, replying on behalf of the Committee, endorsed Mr. Webb's remarks, and said that the Society was fully maintaining the successful prognostications made.

Mr. George Reeves proposed a vote of thanks to the Architectural Association for granting the Society free office accommodation, which was of the greatest financial assistance. Mr. E. C. P. Monson (President of the Society of Architects) seconded the motion, and it was carried unanimously.

Mr. Ralph Ellis proposed a vote of thanks to the retiring President, Mr. Ernest Newton, who was kindly presiding in the unavoidable absence of Mr. J. H. Hanson (President of the Surveyors' Institution). He regretted to say that Mr. Hanson was at present seriously ill.

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The motion was seconded by Mr. H. D. Searles-Wood and carried unanimously.

Mr. Newton, in expressing his thanks, proposed that the Secretary should write to Mr. Hanson, conveying the Society's sympathy and hopes for a speedy recovery.

The meeting then terminated.

The following is the Hon. Secretary's report of work from December 1914-1915:—

The Architects' and Surveyors' Approved Society Benevolent Fund, which is subscribed to by hon. members of the Insurance Society, was primarily formed to assist insured members of the Society on the sick list, who needed help, financial and otherwise, beyond that provided by the National Insurance Act. Subscribers to the Fund will be aware that the National Insurance Act provides medical attendance, sanatoria when needed, and allows Societies to pay their members 10*s.* per week (women 7*s.* 6*d.*) in case of illness. Obviously in a case of protracted illness where a member finds his weekly income reduced to the 10*s.* allowed by his Society, hardship is bound to be experienced, and assistance from a fund such as the Architects' and Surveyors' Approved Society possesses, can do much to ease his difficulties.

In addition, members' medical requirements often go beyond the provision of the Insurance Act, and it was hoped that the Fund would be able to meet such requirements in cases where the applicant's financial position prevented him from meeting them himself.

Although subscriptions have been received by the Fund since December 1912, it was not until the beginning of 1914, when some experience had been gained in the working of the Insurance Act and the position of Societies under it, that the Benevolent Fund came into operation.

Below are particulars of the cases which have received grants from the Fund. It should not be assumed, however, that these are the only cases which have been dealt with, as many others have been investigated and assistance other than financial given.

It should be understood that without the existence of the Fund none of the cases could have been dealt with by the Committee of the Approved Society, as its powers are very limited under the Insurance Act. In some instances work has been found for members and other varied assistance rendered. It will be appreciated that in the latter cases, although no money grant has been given, matters have been greatly simplified by the existence of a fund from which financial help could have been given if other assistance had been impossible.

The appended accounts show a balance in hand of £84 15*s.* 6*d.*, and it is hoped to substantially increase this amount by subscriptions, for unfortunately, as a result of the present disturbed state of affairs, there is every prospect of the calls upon the Fund being more urgent and much greater than they have been.

CASE A.—A member suffering from serious illness, requiring special medical treatment and diet. His employer was interviewed, and upon learning that the Society proposed to assist the member, very kindly undertook to substantially increase his salary for the period of his illness.

CASE B.—A member suffering from tuberculosis, who had exhausted all benefits due to him under the Insurance Act. A small grant was made, and his case brought before the Architects' Benevolent Society, who made a grant of £20.

CASE C.—A member, Territorial, who was mobilised at the commencement of the war. His wife was confined a few months afterwards. Mrs. Cecil Brewer very kindly took this case in hand and found the wife in distressed circumstances. A grant was made for providing necessities, and Mrs. Brewer was able to give very considerable assistance by providing necessities given by friends.

CASE D.—A member with defective eyesight who could not afford proper treatment. The Fund paid his optician's fees.

F. R. YERBURY,
Hon. Secretary.

DR. Nov. 1912 to Nov. 1915.	£	s.	d.
To amount received for hon. members' subscriptions and donations	91	10	0
To interest received on amount placed on deposit (£58 19*s.*)	3	0	0
	94	10	0

CR.	£	s.	d.
By grants to members of the Architects' and Surveyors' Approved Society ...	9	14	6
By balance at Capital and Counties Bank, Victoria Street, on Nov. 1, 1915 ...	84	15	6
	94	10	0

ART IN LONDON.

BURLINGTON FINE ARTS CLUB.

THE better part of ownership of objects of vertu and works of art is surely the power it possesses of lending, so that the sense of pleasure may be expanded amongst many, instead of being strictly confined. Moreover, ownership entails definite responsibilities and the chances (too often realised) of damage or even loss. A mere spectator can thus approach such an exhibition as the present one without any causal elements calculated to act as irritants; the mere pleasure of inspection will suffice, unembittered by pangs of envy or desire.

It is by no means every exhibit that we admire. We are not of the multitude of those who regard "Old Masters" and objects of worship as convertible terms; historical or pedigree interest there may be, but even this may be easily exaggerated. "The Penitent Magdalen," variously attributed to Fernando Gallegos and Jan Massys, provides realistic flesh tones in conjunction with hard and unfeeling drapery and landscape. And hardness, together with a lack of atmosphere, is also noticeable in Fr. Guardi's "Landscape capriccio." Another artist of the Venetian school, but nearly two and a half centuries earlier—namely, Fr. Bissolo—is represented by that wearisome subject "The Virgin and Child, &c."; all four figures introduced seem rather to be posing than composing. A contemporary (of the school of Ferrara), Lodov. Mazzolino by name, in "The Virgin mourning over the body of the dead Christ," produced a very theatrical painting, whilst the exhilarating subject of Apollo flaying Marsyas is displayed in a panel painting by David Teniers the younger. In "The Fruit Seller" we see a typical Dutch piece, the work of Mathys Naiveu, with the colour as attractive and fresh as when applied two centuries ago.

Is there ever an exhibition of miscellaneous "Old Masters" where the head of John the Baptist on a charger does not appear? In the present instance the painter was Girolamo Romanino (of the Brescian school), of the earlier portion of the sixteenth century; we have seen a more attractive "Daughter of Herodias" than this. "The Concert," by Jan de Bray, shows the customary affected group of executants, but the composition, modelling, and technique are all good.

What, however, we like best amongst the pictures are three portraits—one of Raeburn's showing Colonel Francis Scott (though the red tunic is somewhat too insistent); the "Portrait of a Lady," a charming subject, charmingly executed (attributed to Opie, but looking very like Hoppner's art), and finally "Le Moqueur," an auto-portrait by Joseph Ducreux, a very clever piece of characterisation.

The exhibits of decorative furniture include some specimens of Buhl, Chippendale and Italian work; amongst the latter is a child's armchair suitably elaborate in its ornamentation. A Scottish-designed mahogany barometer, showing an inverted Ionic column, is not admirable; there are various good specimens of oak and walnut furniture.

ARCHITECTURE OF LONDON HIGHWAYS.

By "VIATOR."

FROM TYBURN TREE THROUGH SHEPHERD'S BUSH.

ON the occasion of a previous ramble, our course westwards brought us to the debouchment of Edgware Road by the Marble Arch. To-day we will continue along the same high road, as on that occasion, as far as its junction with the urban district of Acton, where the London County boundary terminates on this route. If memory serves correctly, an eventual connection with Uxbridge and Oxford is effected to the Bath Road. The parallel route through London through Piccadilly to Chiswick links up eventually, viâ Brentford and Hanwell, with the route of to-day just beyond the western confines of Ealing.

The character of that portion of the long highway under

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present review is to a large extent domestic, with the houses ranging from the town-residences of the plutocrat and the nouveaux riches down to the modest villas of a suburban type with rentals suited to the incomes of struggling clerks and uncapitalled professional men and women. That there are other classes of building along the Bayswater and Uxbridge Roads (as this portion of the highway is successively designated) is a fact; but more particularly in the eastern section the number of other such buildings is very restricted. We encounter hotels and shops, railway stations and churches, but the House predominates throughout until we arrive at Shepherd's Bush Green, when the balance between the domestic and the commercial is more maintained.

A feature of the domestic architecture on this route is the large number of "back-fronts" to be seen—a London speciality very largely. We meet it here, we meet it in Park Lane, Knightsbridge, St. James's Square (Westminster), and elsewhere; for, where decent-sized premises occupy positions looking towards two important thoroughfares, a mere back elevation is considered unworthy; consequently architectural effect is generally striven for—hence the "back-front." We may see later, however, that in one portion of this thoroughfare mere back elevations take the place of the more fitting feature.

And now, quitting generalities, let us pass under survey some specific works, commencing with a cursory comment, that the north side of the route starts badly with the exposure of the rear of the houses in Connaught Place, Edgware Road. These are, we admit, treated as back-fronts, but of a very poor type; while the fact that they are rendered in stucco, as was the case with so much of the early nineteenth-century work, does not necessarily connote poverty of design, as we shall see later in our progress. But before discussing the north side, let us regard that portion of the south side where the thoroughfare is bounded from the Marble Arch westwards by Hyde Park and Kensington Gardens as far west as Kensington Palace Gardens. Except the beauties of Nature (and truly this is a large exception) there is little to be seen within the confines of these open spaces. There is a memorial drinking-fountain erected half a century ago, a gift of H.H. Meerza Vijiaram, K.C.S.I., Maharajah of Vijianagram. It is a veritable monument, four-square with the chief cardinal points of the compass, with angle buttresses, the superstructure taking the form of an octagonal crocketted spire. The style of Gothic employed in this stone memorial is fourteenth-century. The monument is well-proportioned, and the whole effect is in a high degree decorative, a pleasant detail being the use of the spherical triangle. Unfortunately it has suffered considerably from decay, since its erection in 1867. Opposite Stanhope Terrace there is a pleasing little lodge in brick with stone dressings and tiled roof. The design is Gothic of a purely domestic type, with ornamental barge-boards to the gables, lattice-panes to the windows and with chimneys individualised in the stacks and set angle-wise upon them.

Reverting to the north side, the Hyde Park Place houses are of varied periods and designs, the oldest assuming a stucco garb of simple Classic, not at all well knitted together as a terrace block. These date back, we believe, to the fourth quarter of the eighteenth century, a period when Messrs. Stuart and Revett, having published the results of their labours in Athens, gave an impetus to the use of Classic façades. In No. 9 we are confronted by an abrupt change, in its modernity on the one hand and its colour-effect in buff terra-cotta on the other. Its bowed façade, surmounted by a balustraded balcony and a straight-sided gable, is sufficiently effective, even if the design is as a whole indifferent.

Passing by Nos. 10 and 11, we are next confronted by a good Renaissance block of flats faced with stone. Here once again is made manifest the value of simplicity in design. There is but little in the nature of ornament or decoration; the proportions satisfy the eye, the crowning balustrade deserves our approbation, and the ironwork is meritorious. The return flank on to the chapel forecourt repeats the façade treatment.

The Chapel of the Ascension should be one of the sights of London if only its deserts were known. Not by reason of any architectural attraction, but because of the fine series of wall-paintings it contains, the production of the late Frederick Shields, whose later years were devoted to this work, and whose death occurred just after his labours were completed. The paintings form a perfect wealth of Scripture revelation, and though the chapel cannot compete with the Royal Exchange in regard to the general interest of the paintings respectively enshrined in these two buildings, yet as a monograph of an artist's soul the chapel stands alone—unique and almost unapproachable. It may be remarked that a special canvas was employed as a medium for these wall pictures, and this has been mounted on slate, secured to the walls of the chapel, a similar process being employed for the works in the better-known Exchange; of course, the latter building possesses architectural interest also; but Mr. Horne, the architect of the chapel, was merely required to provide a shell for the decorative painting. The building forms merely a cella approached by a vestibule with a gallery over, the lighting is from the east and west windows, set high in the walls. The open timber roof is also treated in decorative painting.

We leave this chapel (erected for the timely rest and prayerful meditation of wayfarers), we leave Hyde Park Place, and we welcome Hyde Park Terrace with its respectable early nineteenth-century architecture in stucco. The rusticated ground-storey, the Greek Doric portico, the colossal Corinthian order of pilasters, the good entablature with attic counterweight—all combine in the production of worthy domestic art. Hyde Park Gardens possesses no point of architectural interest, and it is only upon reaching Lancaster Gate that a really fine stretch of noticeable frontage is obtained. . . . But here we wish momentarily to break away and to cross the thoroughfare, in order to regard the Dogs' Cemetery in the Park, close to Stanhope Gate. Whether to approve or to condemn the underlying sentiment, it is hard to say; it is true that we make pets of our canine companions and find them faithful, loving, and often unselfish, and perchance it ennobles our humanness when we recognise them as something more than the mere goods and chattels and furniture of our houses, to be forgotten when no longer with us. Therefore the tombstones erected in memory of departed pets may well find justification. At any rate, in our own case, if at one period we were wont to scoff, we have outlived the desire, even though indifferent to so acting by any pet we might lose.

Yet another pause (before regaining our former standpoint) in front of Lancaster Gate Station of the Central London Railway. All these stations are well and expressively designed, and are executed in buff terra-cotta facing forming a more satisfactory ensemble than in the case of the stations of some of the other "Tube" companies. The superstructural hotels on the Central London Railway are mostly (if not in all instances) designed by Mr. Delissa Joseph, and vary in interest; Park Gate Hotel lacks the sense of inspiration and need not detain us. Looking at it, we are able to perceive how insipid red-brick and buff terra-cotta in conjunction may be in appearance.

Lancaster Gate gives entrance to the Royal Gardens environing Kensington Palace, at the head of the ornamental lake known as the Serpentine; the power-house and the decorative lay-out at this spot form a pleasant feature and impart some character. A short vista leads thence to the memorial granite obelisk erected to Captain Speke, the African explorer.

On the opposite (the north) side of the thoroughfare are the extended terraces known as Lancaster Gate, and these merit attention. Our memory of them reverts to the time when they were the town residences of the plutocrat of the day. Sed tempora mutantur; nos et mutamur in illis. The plutocrat of forty years ago is beneath consideration by the side of the millionaire and the multi-millionaire of to-day; and the erstwhile abodes of plutocracy are now increasingly becoming the venue of hotels and private boarding-houses. The blocks are well set back from the thoroughfare, with private roads intervening, and they extend northward, additional blocks flanking both sides of parallel roads to the rear of the highway. The architectural treatment is sound, and the general effect of these Renaissance stucco frontages is attractive and alive, without incurring any loss of the dignity due to their environment.

A feature of great interest is Christ Church, set at the end of a short vista and standing square in the midst of the cross roadway. Here we have an excellent example of modern Gothic architecture, the whole composition being good and the proportions satisfactory. The church has a fine tower and crocketted spire, the tracery is artistically designed, and the structure has weathered to a nice tone.

Just west of Lancaster Gate houses is another terrace block, yclept Porchester Gate, but designated many years

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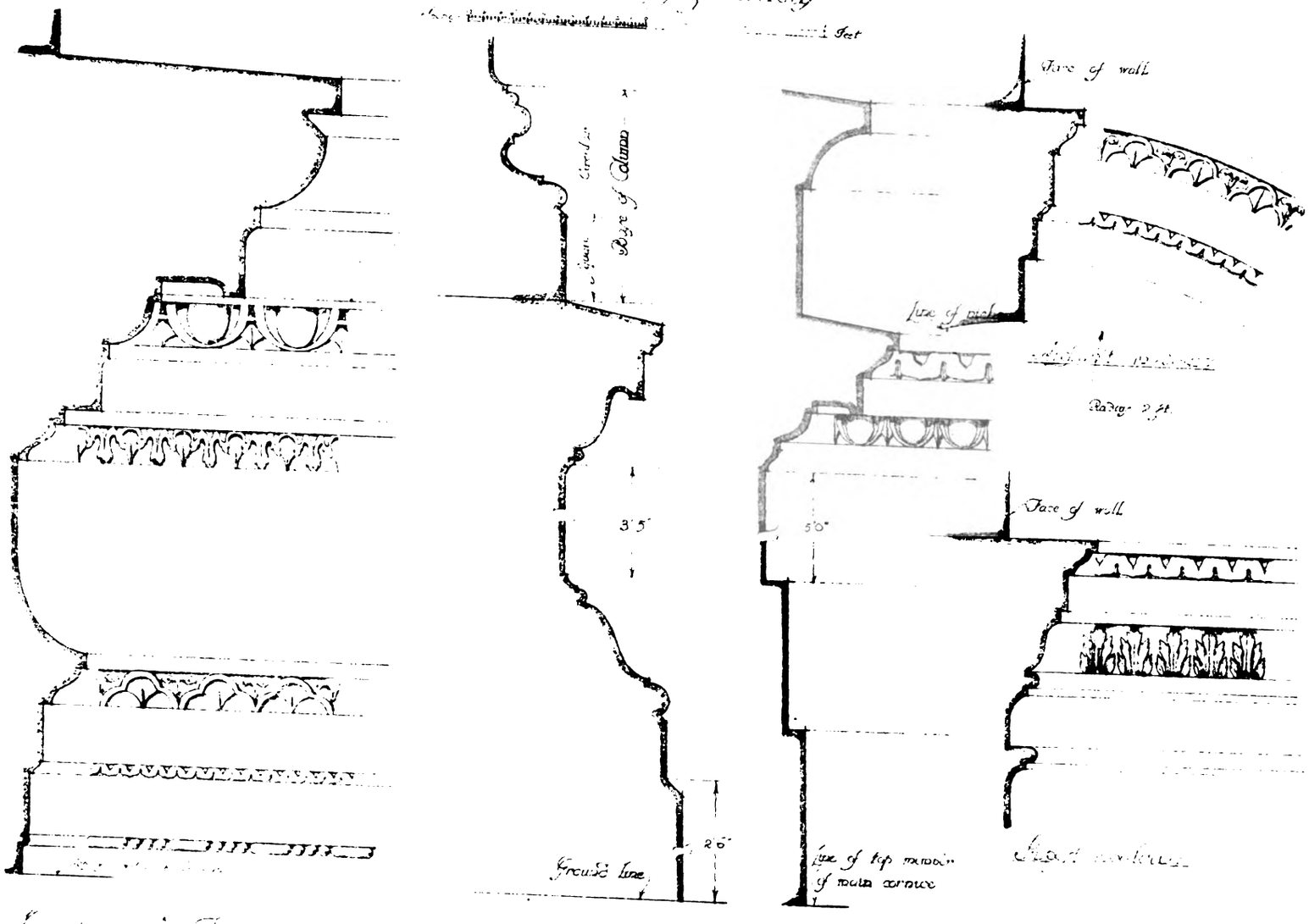
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CHURCH OF ST. LAWRENCE JEWRY, LONDON, E.C.

Quarter Full Size Details



Line of Impost & Frieze

Back Entablature & Pilaster

Cornice over Main Entrance

INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET SOHO W

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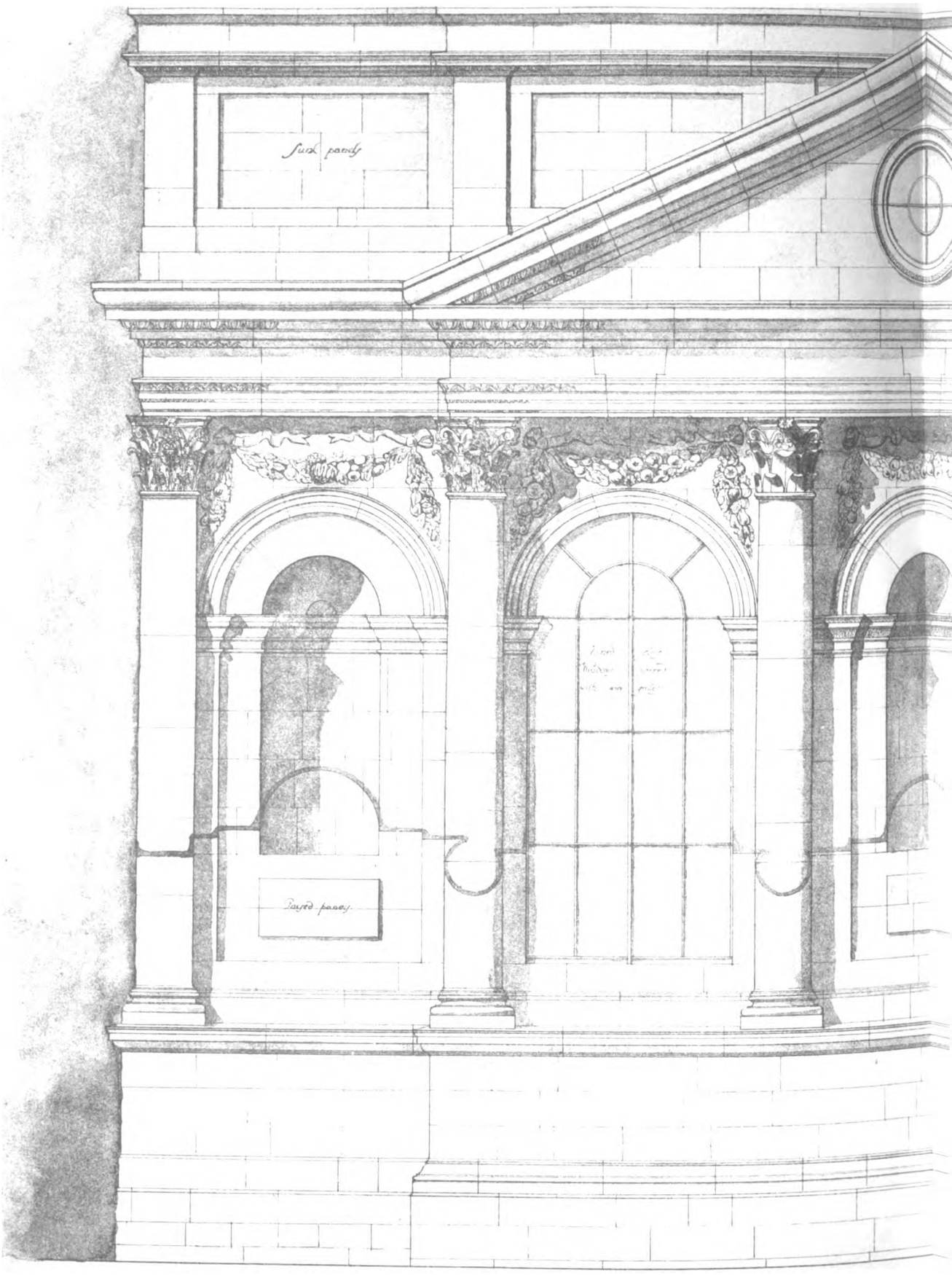
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CHURCH OF ST: LAWRENC

Architect :- Sir Chr



EAST ELEV

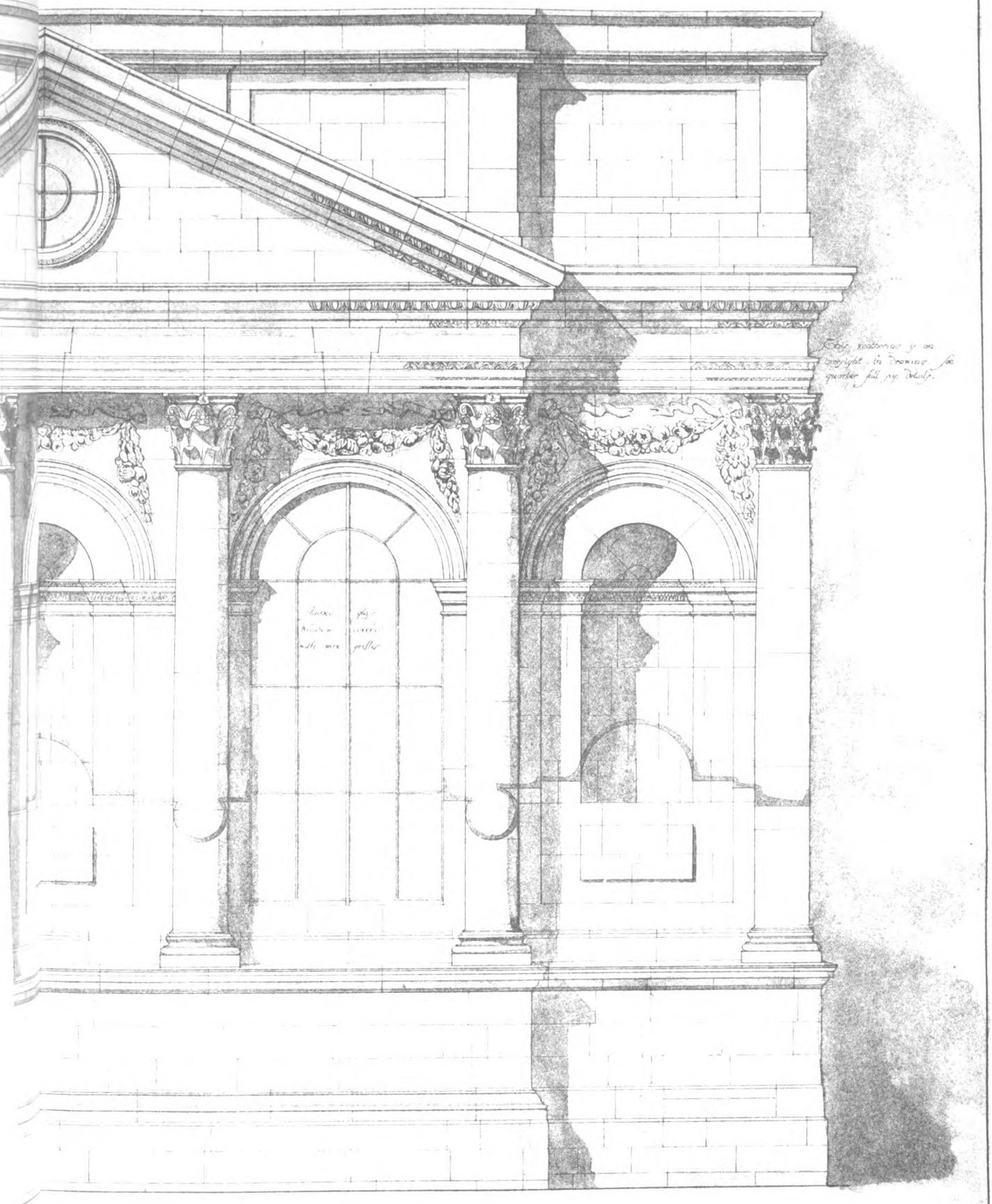
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Dec 17th 1915

LAWRENCE JEWRY, LONDON, E.C.

Christopher Wren



EAST ELEVATION

Feet.

A. R. Fox 1915.

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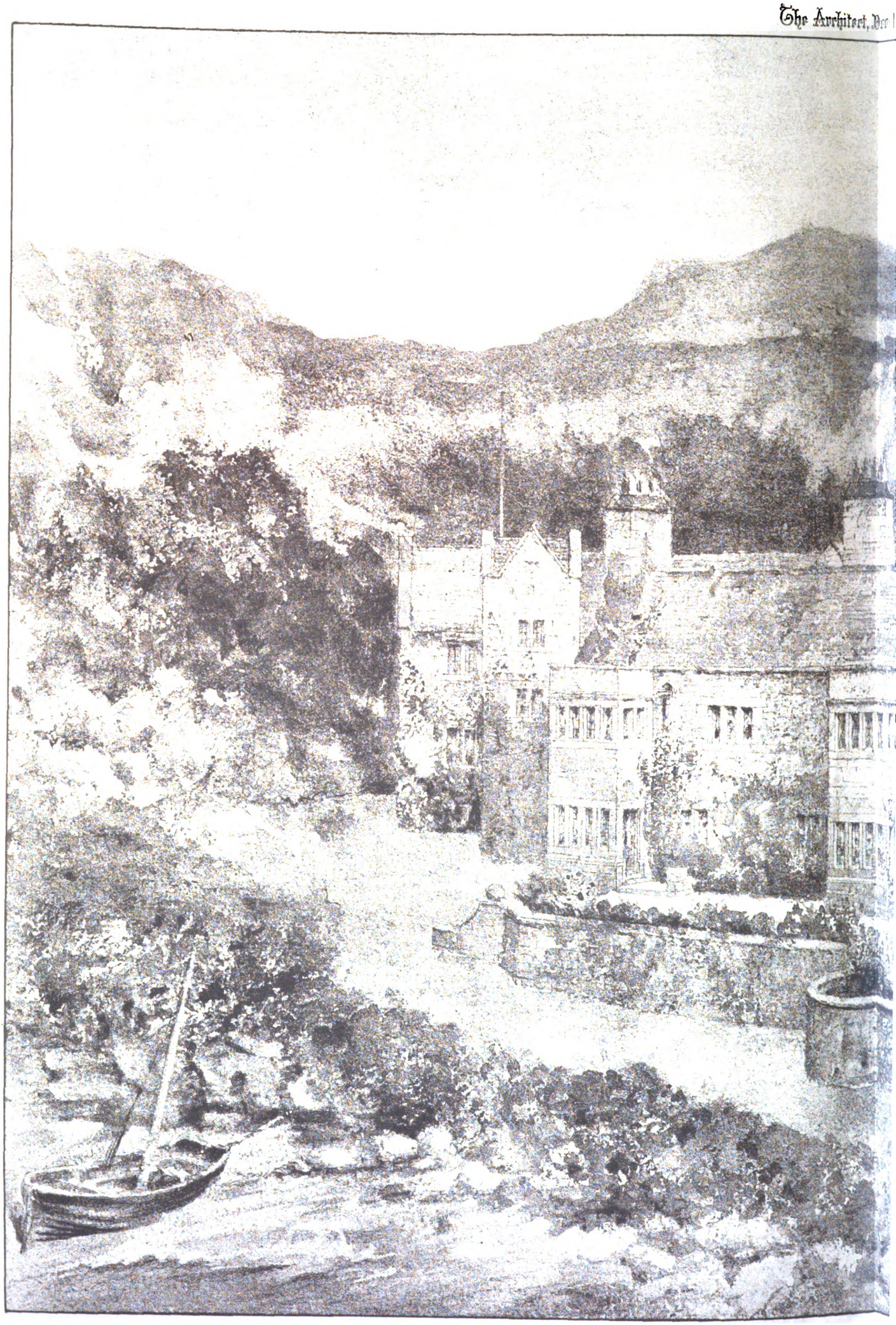
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"LITTLE CAMBE

MR. CHARLES E. BATEMAN, F.

(Royal Academy Exhibition, 1915.)

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INK-PHOTO: SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

"MBRAE."

N, F.R.I.B.A., Architect.

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ago Bayswater Mansions. These are stucco houses, designed by Colonel R. W. Edis; there is no evidence here of individuality of design, such as we see in the work of Norman Shaw, but in itself it is quite unobjectionable, and the flanking pavilion roofs pleasantly break up the skyline.

At Queen's Road Station (Central London Railway) we are confronted by the super- and flanco-structure of Coburg Court Hotel, with Mr. Joseph as architect; it is a very reputable block in buff terra-cotta, with red brick as a relief; domes are freely introduced, and the façade is well broken up in elevation. Orme Court, too, is distinctly architectural (in the accepted use of this adjective), with substantial windows and satisfying octagonal angle block, surmounted by a red-tiled concave spire roof with a well-designed weather vane.

Glancing along St. Petersburgh Place, we see a synagogue on one hand, at which we do not care to cast a second glance; it was the work of Mr. N. S. Joseph about forty years ago. On the opposite side stands a fine Gothic church, designed by Mr. J. Johnson; if we wandered further down this turning we should encounter Mr. John Oldrid Scott's Greek church at the corner of Moscow Road, a building well worthy of attention. Palace Court consists of various good modern façades, one designed by Mr. J. J. Stevenson being specially noteworthy in buff terra-cotta, with a boldly projecting square bay block carried up full height and breaking through the roof.

The stations of the Central London Railway from here westwards have no superstructure, but perhaps they are none the worse for that.

Kensington Gardens, on the south side, have given place to Kensington Palace Gardens lordly residences, and those again are succeeded by poor shops and by two theatres; the Coronet Theatre (home of the legitimate drama) is a stone structure in free Renaissance, crowned by a monumental dome supporting an energetic figure of Mercury; the building is poorly designed and proportioned, and it is only the festooned frieze which pleases. The cinematograph theatre close by is appalling in its ugliness.

And now succeeds a stretch of residential thoroughfare, known as Holland Park Avenue, some of the houses on the north side being of early nineteenth century date, and possibly even earlier. The façades are of good Classic design, and are executed in the stucco so much in vogue at that period; interspersed are some modern façades. The back-fronts of some of the south-side houses are treated architecturally (or perhaps we should say non-architecturally) as mere back elevations with lamentable results. But St. James's Vicarage is a good red-brick building with stone dressings, a design in quiet mid-Victorian Gothic. St. James Norlands Church (filling up the north end of the vista of Addison Road North) is an indifferent Gothic pile in yellow brick.

In passing, we may notice the expressive building for the Notting Hill and Bayswater High School for Girls at the corner of Norland Square; further west is the effective sweep of terrace houses in Royal Crescent; whilst just opposite is the appalling mammoth erection known as the Skating Rink, a stucco abortion with no pretence of design. This commentary cannot be passed upon the Porte Monumentale giving access from the High Road to the White City Exhibition buildings; this entrance was designed by a Frenchman, and we cannot offer our congratulations.

The only building worthy of notice between the Shepherd's Bush Station (Central London Railway) and the Metropolitan Railway bridge is the Passmore Edwards Free Library (a branch of the Hammersmith Libraries), designed by Mr. Maurice B. Adams in 1895. It is carried out in red brick and stone. We must deprecate the use of bandy shafts to the Ionic columns. St. Stephen's Church on the south side of the thoroughfare has a good tower and spire with spire lights. The building is designed in free Gothic and presents a worthy pile in stone. Oaklands Congregational Church opposite is a great contrast; a stucco façade with a fine Corinthian colonnade, the whole effect is cold, but still architectural.

St. Luke's Church, further west of the last-mentioned, is a Gothic structure, nothing out of the ordinary.

And here we reach the boundary of the County of London, and in passing under review the route we have travelled we recognise how it suffers architecturally in comparison with other routes we have traversed. Such a responsibility rests upon architects if they will but recognise the fact. If an artist paints an indifferent picture it may remain in his studio; or if foolishly presented to an art gallery it will offend the eyes of those alone who enter within the building. But if an evilly-designed edifice rears its head it retains its public position where the general passer-by may have his taste vitiated by its demerits; or, should he be a connoisseur, then his taste is permanently offended; and, if business carries him along the insulted thoroughfare, he must needs see the blot which nought but Time, the omnipotent destroyer, or else perchance a Zeppelin bomb or similar accident will remove from his offended gaze. May we not take liberties with Omar Khayyam and say:

> The moving pencil forms; and what's designed,
> When th' architect is dead, remains behind;
> And 'tis an accident alone, I wot,
> Will by destruction, seem cruel to be kind.

THE ARCHITECTURAL SIDE OF CITY PLANNING.*

By GEORGE B. FORD, Chairman, Town Planning Committee, American Institute of Architects.

THE World's Fair in Chicago in 1893 was an object-lesson to all who saw it of the wonderful possibilities of architectural grouping and setting. So deep was the impression that many on returning to their homes began wondering whether something of the same effect might not be secured in their own local public buildings. From this started the movement for "Civic Centres," which has been bearing fruit in so many of our cities. It is this movement that has given voice to the slogan, "The City Beautiful." As this work progressed people began to think, and the more broadly they thought about the development of their cities the more they came to feel that the "City Beautiful" alone was only a small part of the matter; that rather the construction of all phases of the physical city should be considered as a unit; that the city should be so planned that its work and its play, that city living should be as safe, healthful, convenient, and agreeable as proper planning could make it. Then a peculiar thing happened. The social and economic interest in city planning became so strong that the pendulum swung to the opposite extreme, and soon almost no one dared mention the term "City Beautiful." People almost lost sight of the architectural side of city planning. They failed to appreciate that what is economically and socially good may be æsthetically shocking; that the offence to the senses may more than outweigh the gain in well-being.

Now the citizens are waking up to the fact that once a plan is satisfactory from the standpoint of business efficiency and social welfare, it need cost little, if any, more to make it pleasing to the eye as well. Many are feeling that oftentimes it is worth while to sacrifice a little of the other elements in order to gain in beauty. The pendulum is swinging back to the normal. Comprehensive, all-round city planning is arriving.

Beauty is not something that is just applied after the plans are worked out. Beauty is more than skin deep. It must go back to the inception of the plan. At all stages beauty should be considered as well as utility. We can all understand utility, but while most of us appreciate beauty when we see it, few of us can analyse a pleasing effect and tell wherein its charm really lies. Architecture or, better, "Civic Design," as it is often called when speaking of civic architecture, is generally considered a rather mysterious subject, a subject to be left for its creation to the initiated few. The existence of such a feeling is most unfortunate. The sooner that illusion can be cleared away and the principles underlying good civic design are generally understood, the more insistent and general, and therefore the more effective, will become a popular demand for seemliness in our cities. To this end we will try to present the major principles of civic design, illustrating them from well-known examples. From the first we find that the only difference between architecture and civic design is one of degree and application. In both cases the eye is satisfied by the use of good taste in mass, proportion, placing of ornament, scale, appropriateness, and the handling of colour and materials. These are the same phases of design that run through all art, from the study of the setting for a jewel to the laying out of a great World's Fair group. For each

* Address delivered on June 8 before the Seventh National City Planning Conference.

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kind of work the principles have their different technical application, but they themselves remain the same.

For example, the Union Station in Washington is very good in mass; the North Station in Boston is very bad. In the Washington Station the great central portion, with its three great arches, the lower side wings with their lower arches and columns, and the great approach all hang together in perfect unity. In the Boston Station, however, the opposite is true. No two parts of the façade hang together. The total effect is chaos. The mass is bad.

Again, why is it that every one is charmed by that perfect architectural gem, the New York City Hall, and at the same time is left cold by the Post Office Building in front of it, and by the Old Court House behind it? The City Hall could hardly be improved on in its proportions, while the proportions of the various motifs in the Court House and Post Office are crude and unprepossessing. Good proportions in the design of any civic structure mean that the eye will be satisfied and the prospect remembered with pleasure.

The placing and distribution of details, their amount and kind is all important. The Pan-American Union Building in Washington is very happy in the disposition of details on its façade and in the arrangement of architectural features in its setting, such as the terraces, balustrades, steps, pedestals, &c. The same is true of the placing of architectural and sculptural features in the approach to the Library of Columbia University. A splendid opportunity for good civic decoration can be wasted by the erection of a monument so unhappy in the spotting of its details as that in the "Square" at Cleveland, Ohio.

Scale is a highly technical matter and very hard to sense. A building or any civic structure is in scale when a man standing just in front of it appears to be man-size in relation to the structure. Most of the Gothic cathedrals of Europe are in excellent scale, but when you see a man in St. Peter's in Rome he appears like a pigmy. The building is too large in scale. All of the motifs and decorations are exaggerated to the verge of clumsiness. If the scale is too small a structure is apt to appear trivial. If the scale is too large it tends to become oppressive.

The appropriateness of the design of a structure to its function is a matter on which every one has his own views. Many question whether the heavy Classic architectural treatment of the Pennsylvania Station in New York is peculiarly suited to the needs of the great modern terminal. There is a distinct demand for a monumental treatment in order to make it a worthy entrance to a great city, but it is a debatable point whether a more open treatment would not have given a greater sense of the movement of a city's crowds. On the other hand, the modern factory building, with its walls of glass, its construction strongly accused, its elimination of all superfluous features is the acme of appropriateness. Such crudeness of suitability to use would rarely do in civic structures, for these must represent all the dignity of the city government. A certain sacrifice of the useful to the monumental becomes part of appropriateness in civic design.

Attention to the possibilities of texture of surface and of materials is something that we have not carried as far in America as they have in Europe. We have become used to the red pressed brick façade with its rock-faced granite trimmings and its painted iron cornice. Yet what a far cry from that to the beautiful texture and use of material in the Morgan Library in New York, in the Wisconsin State Capitol, or in some of the recent suburban stations about New York, as in Yonkers, White Plains, and along the West Chester and Boston Road. For the same cost, good taste in the use of material and in the texture of surfaces can make a great difference in appearance.

The recent use of colour in architecture in our expositions, particularly in the wonderful colour effects which are now to be seen at San Francisco, has opened our eyes to new possibilities in this field. We are afraid of colour, especially in our civic architecture. We excuse ourselves by saying that it is "undignified." The real reason is that we do not trust ourselves to use it. But, in view of the present ease and cheapness with which coloured terra cotta and coloured cement can be made, I believe that our cities are not bound to remain much longer sombre, drab, and monotonous. The possibilities of the use of colour are limitless, and I prophesy an early demand to have our cities brightened.

It is charm of appearance that makes us proud of our city. It is that that should justify us in spreading the tale wherever we travel of what a wonderful city it is. It is beauty of prospect and of buildings that first catches the stranger's eye and suggests to him the thought that it might be well to come and take up his lot with us. It is only after such a first impression that he begins to think seriously about the practical things that make up a city plan. We must have beauty, too. The full expression of the best that is within us demands it.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Architectural Association Voluntary Aid Detachment.

SIR,—The necessity and importance of Red Cross work hardly need emphasis at the present time. The interest to be found in it can be attested by anyone who has undertaken it. What does require emphasis is the need of a constant supply of workers, and I venture to draw the attention of your readers to the detachment now registered as "London 43 V.A.D., Westminster Division," with headquarters at the Architectural Association, 18 Tufton Street, S.W.

There is plenty of work to be done, and any man who joins may be sure that his services will be used as soon as he is qualified. Classes for instruction are held as recruits come in. The first course of First Aid lectures was given by Dr. Spicer in September. Dr. Brydone, the medical officer of the detachment, continued with a course on Home Nursing, and has given a course on First Aid, for the examination at the end of this month. He is now holding a third course, and another is to begin soon after Christmas. There are between sixty and seventy names on the roll, of whom between thirty and forty are already qualified.

As this is the only men's detachment in the Westminster Division, they have been called upon to assist in many ways. Thus we provide orderlies for the Officers' Hospital at 24 Park Street, and for Lady Violet Brassey's Officers' Hospital, and propose to do the same for the large soldiers' hospital soon to be established at 184 Queen's Gate. We have volunteered professional services in advising the Westminster Division on the various houses which may be turned into hospitals. Our stretcher-bearers hope to assist the London Ambulance Column in meeting the trains of wounded at the railway stations, and conveying them to hospitals, and we are almost hoping for another successful air raid, because the police have asked us to be ready to render first aid, and do what we can to succour the victims. Our commandant, Mr. Ambrose W. Coffin, is constantly asked for volunteers to undertake all kinds of jobs, from convoying stray convalescents across London to lending a hand to meet a rush of clerical work at headquarters. Parades for company and stretcher drill are held under the instruction of Sergeant Daniels, of the R.A.M.C., who in quieter times is an engineer in Canada.

We make a special appeal to architects and men of kindred occupations, because through them the detachment came into being, and most of our members are drawn from these callings. But we welcome all men of goodwill from any station in life. The only conditions are that they should be either not eligible for military service or already attested under Lord Derby's scheme, and the only financial contributions required are a nominal entrance fee and the provision of their own uniforms. The work will increase as the war goes on, and the more workers we can have to draw upon the better. It is certain that no man who undertakes this work will regret it, and the knowledge he will gain is such as every man ought to possess, and as will make him more useful in every branch of life.

For further information and application forms, inquiry should be made to the Quartermaster, Mr. V. Wilkins, at 18 Tufton Street, or the Commandant can be seen there on Wednesdays at 6 P.M.—Yours, &c.,

HENRY M. FLETCHER,
Hon. Secretary, Architectural Association.

18 Tufton Street, Westminster, S.W.:
Dec. 14, 1915.

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BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CORNWALL.

Redruth.—West of England bacon factory: extension.

DERBYSHIRE.

Heanor.—Proposed school for technical engineering. Mr. G. H. Widdows, F.R.I.B.A., architect, County Education Office, St. Mary's Gate, Derby.

DORSET.

Weymouth.—Garage for the Co-operative Society. Mr. S. Jackson, architect, Bridge Chambers.

DURHAM.

Consett.—Theatre Royal: alterations for N.E. Breweries Co.

Stockton-on-Tees.—Two houses, near Whiteley Springs Bridge, Yarm Road. Messrs. Pickersgill, builders, Silver Street.

GLOUCESTERSHIRE.

Stroud.—The "Crown" Hotel, The Cross: alterations. Messrs. P. Ford & Son, builders, Slad Road.

HAMPSHIRE.

Winchester.—Motor garage, City Road. Mr. B. D. Cancellor, architect, 12 Jewry Street.

KENT.

Folkestone.—"The Gables," Shorncliffe Road: additions. Mr. C. D. Jenner, architect. Mr. J. Jenner, contractor.

LANCASHIRE.

Barrow-in-Furness.—Hotel, Walney Island, for the Walney and Barrow Islands Public House Trust Co.

Bolton.—Five houses, Chorley Old Road, for Mr. J. Boyle.

Cadishead.—Proposed Congregational Church school (£1,800).

Inskip.—The "Derby Arms" public house: alterations for Mr. Birchall.

St. Helens.—Eccleston Hall: pavilion (£600) for the Corporation.

Wigan.—St. Stephen's (new) Church, Whalley.

LINCOLNSHIRE.

Grantham.—R.C. school.

Lincoln.—Garage, Waterside South, for Messrs. Preston, Proctor & Co., Ltd.; also
Engine-testing shop, Firth Road.
Mess room, &c., Firth Road, for Messrs. B. Cannon & Co.
Acetylene welding shop and workshop, Canwick Road, for Messrs. Robey & Co.

MIDDLESEX.

Harlington.—The Fairy Aeroplane Co.: offices.

NOTTINGHAMSHIRE.

Kirkby.—Houses, &c., Kingsley Street, for Mr. J. Stow.
Shop, &c., Edward Street, for the Butterley Co.

Mansfield.—The "Nag's Head" p.h.: alterations. Mr. P. P. Cook, architect, 14 Leeming Street.

STAFFORDSHIRE.

Walsall.—R.A.O.B. Orphanage, Aldridge: isolation ward (£600).

YORKSHIRE.

Brighouse.—Mill, Mill Royd Street. Mr. E. C. Brooke, architect, Central Chambers. Separate trade contractors.

Cudworth.—Proposed R.C. school for 200 places.

Hemsworth.—West End Working Men's Club: additions.
Two houses for Mr. H. Smethurst.
Proposed Secondary school, Brierley Common.

Leeds.—Reckett's Park Military Hospital.

Moorthorpe.—Church (£1,400).

WALES.

Cromllynfell.—Billiards' hall. Mr. E. D. Jones, architect. Mr. Henry Williams, contractor.
Business premises. Mr. E. D. Jones, architect. Messrs. T. J. Williams & Co., contractors.

Wrexham.—Garage, Hill Street, for Mr. J. E. Edwards.
Premises, Regent Street: alterations for Mr. F. W. Parry.

SCOTLAND.

Aberdeen.—No. 124 Stanley Street: alterations for the Northern Property, Landed Investment Society, Ltd.
Business premises, Frederick Street: additions. Mr. John Rust, architect, 224 Union Street; also Stores, &c., Sinclair Road.
Factory, North Esplanade West: additions and alterations. Mr. W. E. Gauld, F.R.I.B.A., architect, 11A Dee Street.
Factory, Rose Place: additions and alterations. Messrs. D. & J. R. MacMillan, F.R.I.B.A., architects, 105 Crown Street.
House, corner of Dee Street and Oldmill Road. Mr. W. J. Devlin, A.R.I.B.A., architect, 156 Union Street.
Shop, rear of 493 George Street. Mr. George Watt, architect.

Dundee.—Garage, Thomson Street, for Mr. A. Spreull.

Edinburgh.—Shop and store, Sciennes. Mr. D. McArthy, architect, 25 Frederick Street.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 23,676. Dec. 7, 1914.—F. S. Grogan, 14 Argyll Mansions, Chelsea, S.W. Electric heating elements.

2,003. Feb. 8, 1915.—J. A. Owen, Astrop, near Banbury. Calcining kilns.

23,054. Nov. 25, 1914.—Henry Terrisse, 5 Florissant, Geneva, and the Indestructible Paint Co., Ltd., 36-37 King Street, Cheapside, E.C. Manufacture of varnishes, lacquers, insulating waterproofing coating preparations, protective preparations, paints, enamels, and the like.

2,928. Feb. 23, 1915.—E. R. Hough and Laurence Harrison, Sutherland House, 3 Lloyds Avenue, E.C. Electric-light fittings or brackets.

10,007. July 9, 1915.—Joseph Southall, Worcester Foundry, Worcester. Machines for mixing concrete and like materials.

11,364. August 6, 1915.—Richard Whalley, 134 St. George's Road, Preston, Lancs. False grate or fuel economiser for domestic fireplaces.

13,795. Sept. 28, 1915.—F. G. Ross, Nesbit Road, Bombay. Globe holders for gas burners.

4,873. March 29, 1915.—Carl Weber, 914 So. Michigan Avenue, Chicago, U.S.A. Process for applying plaster or the like to wall surfaces.

22,240. Nov. 9, 1914.—H. W. Armstrong, 39 Duke Street, Hamilton, Wentworth, Ontario, Canada. Appliances for use in making drawings.

21,924. Nov. 3, 1914.—Thomas Robertson, sen., 205 Newhaven Road, Leith, Scotland. Slide rules.

23,533. Dec. 4, 1914.—H. M. Macmillan, Fairfield Shipbuilding and Engineering Co., Ltd., Govan, Glasgow. Air pressure apparatus for use in spraying or discharging paint, granulated cork, and other materials.

24,652. Dec. 28, 1914.—M. A. Holmes, 135 Beresford Road, Rusholme, Manchester. Glazing of roofs.

345. Jan. 8, 1915.—C. J. Westrup, 34 Great Tower Street, E.C. Manufacture and use of oil gas.

1,236. Jan. 26, 1915.—Walter Thomson, 774 St. Helens Road, Bolton. Ladders.

2,857. Feb. 22, 1915.—M. O. Spicknall, 9 Cloak Lane, E.C. Slide-rules.

3,444. March 4, 1915. (Dated under International Convention, February 14, 1914.) W. J. Stewart, Elgin Street, Belfast. Means for constructing pile foundations.

9,296. June 24, 1915.—Joseph Troquay, 58 Bartholomew Road, Kentish Town. Apparatus for controlling gas and other valves and cocks.

12,406. August 28, 1915. (Dated under International Convention, August 28, 1914.)—A. F. Brown, Box 97, Havre de Grace, Harford, Maryland, U.S.A. Fastening means for nails, spikes, and the like.

22,234. Nov. 9, 1914.—Delzeel Paton, 27A Yerbury Road, Holloway, N. Drop nozzle for use in automatic water sprinklers for fire-extinguishing and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

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BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 1,504. Jan. 30, 1915.—Operating Mechanism for Sliding Bolts for Doors and the like. W. H. Tonks and Walter Sparks, both of Messrs. Tonks, Ltd., 201 Moseley Street, Birmingham.—This invention relates to sliding bolts for doors and the like (such as are or may be actuated by a crush bar on the inner side of the door and by a key from the outside of the door) of the type in which the two bolts are connected together by means of a coupling disc having projecting pins. The improved construction and arrangement is designed to prevent the actuating of the fastening mechanism by the prising up of the lower bolt from the

Fig. 1.

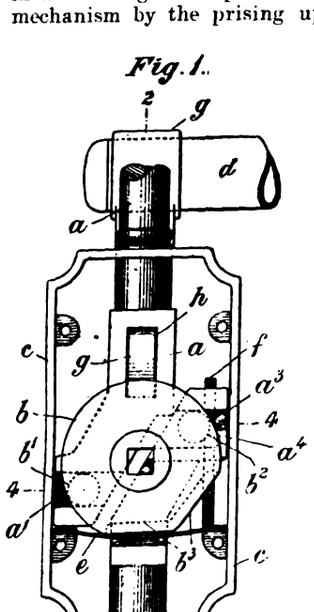
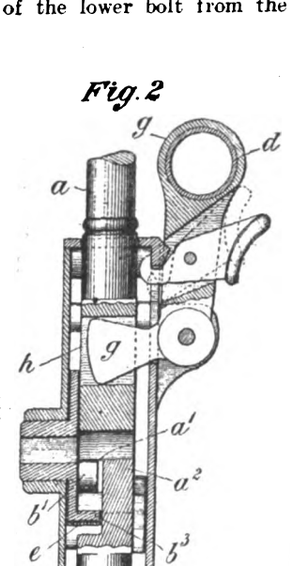
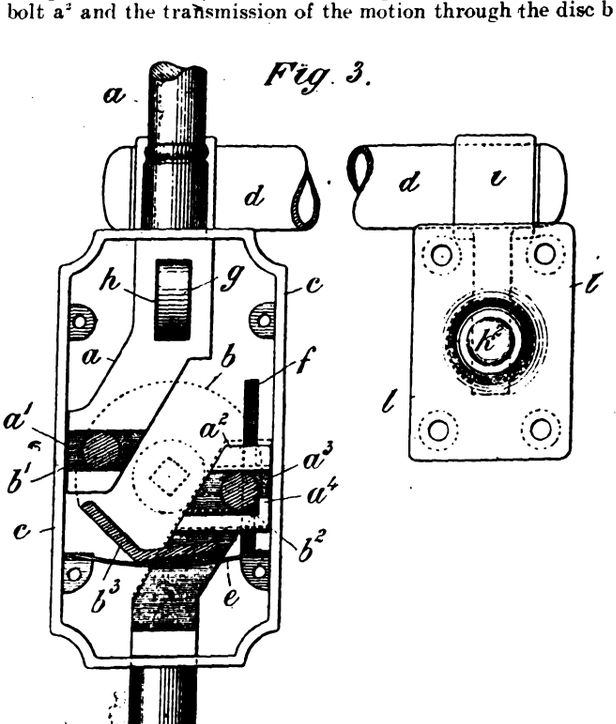


Fig. 2



outside of the door or by the vibration or rattling of the door. The slot in the lower bolt carrying part is somewhat wider than the diameter of the projecting pin of the coupling disc, so as thereby to provide for a limited motion of the lower bolt should the same be prised up from its lower end. At the outer end of the slot a tongue is provided which is presented to the gap between the pin occupying the said slot and the wall of the containing box of the mechanism when the said mechanism is in the bolt-fastening position. Fig. 1 represents in back elevation the improved bolt-operating mechanism with the cover plate of the case removed and the parts of the mechanism in the positions which they respectively occupy when the bolts are withdrawn. Fig. 2 represents the same partly in side elevation and partly in vertical section, the section being taken on the dotted line 2—2, fig. 1. Fig. 2 represents the mechanism partly in back elevation and partly in section, the parts being in the positions which they respectively occupy when the bolts are in their acting or shot positions. a, a^2 are the top and bottom bolts respectively, and b is the disc-like coupling-piece, by the rotation of which, by means of a key or the like, the two bolts a, a^2 can be simultaneously operated. The coupling-piece b also ensures on the motion of the top bolt a, when effected by the pressure on the crush-bar d, the transmission of an upward motion to the bottom bolt a^2, the coupling-piece or disc b having on it the usual projecting pins b^1, b^2 engaging with channels or grooves a^1, a^3 in the parts of the top and bottom bolts a, a^2 occupying the case c of the operating mechanism. The channel or groove a^3 in the lower bolt a^2 is somewhat wider than the pin b^2, and consequently a slight motion of the bottom bolt a^2 is permitted with respect to the pin b^2 without effecting the unfastening of the bolt. At the outer end of the lower side of the channel or groove a^3 is a projecting lip or flange a^4, which, when the bolt-operating mechanism is in the acting position represented in fig. 3, is presented to the space between the pin b^2 and the side wall of the case c, against which the inner part of the bottom bolt a^2 works, and should the bottom bolt a^2 be lifted otherwise than by the turning of the key or operating of the crush-bar d, the lip or flange a^4 will enter the said space between the pin b^2 and side wall of the box or case c after the bolt a^2 has been slightly lifted, and thereby the disc b will be prevented from performing the partial rotation necessary to complete the lifting of the bolt a^2 and the transmission of the motion through the disc b

Fig. 3.

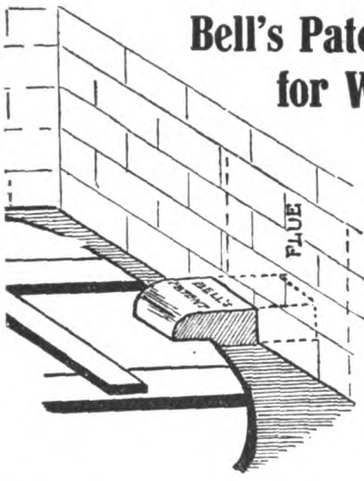


to the top bolt a. b^3 is an angular lip or flange on the lower edge of the coupling-disc b, which lip bears on a plate-spring e the spring preventing motion of the parts, excepting by the use of the key from the outside of the door or operation of the crush-bar d on the inside of the door. f is a rib on the inner wall of the case or box c, which serves as a guide for the inner end of the bottom bolt a^2. g is the bell-crank lever, the end of the short arm of which engages in a slot h in the inner part of the top bolt a the long arm of the bell-crank lever supporting one end of the crush-bar d. The other end of the crush-bar d is supported by an arm i pivoted to a projecting lug having a pin k^2 capable of rotation in a hole in the fixing-plate l. Oct. 20, 1915.

THE Architectural Association of Ireland held their annual smoking concert on Thursday, the 9th inst., at the Central Hotel, Exchequer Street, Dublin. The President, Mr. H. G. Leask, occupied the chair, and there was a large attendance of members and guests. Many of the members contributed vocal and instrumental items of much merit, while Mr. R. Caulfeild Orpen, R.H.A., displayed his skill as a lightning cartoonist. The Committee was most fortunate in having secured the services of several well-known Dublin performers. The proceeds of the concert will be devoted to the British Red Cross Society.

THE Glasgow Institute of Architects held their quarterly meeting last week at 115 St. Vincent Street, Glasgow, Mr. John Watson, F.R.I.B.A., President, in the chair. It was reported that the Council had approached the Civic Survey Committee, London, with a request that Glasgow be included as one of the areas of civic survey at present being carried out by architects which would be of great service to various undertakings of public utility, and also assist professional men who have lost their work in consequence of the war. A memorial to the Commissioners of H.M. Office of Works, protesting against the demolition or removal of the Tolbooth Steeple, was signed by the President, Secretary, and other members of the Institute.

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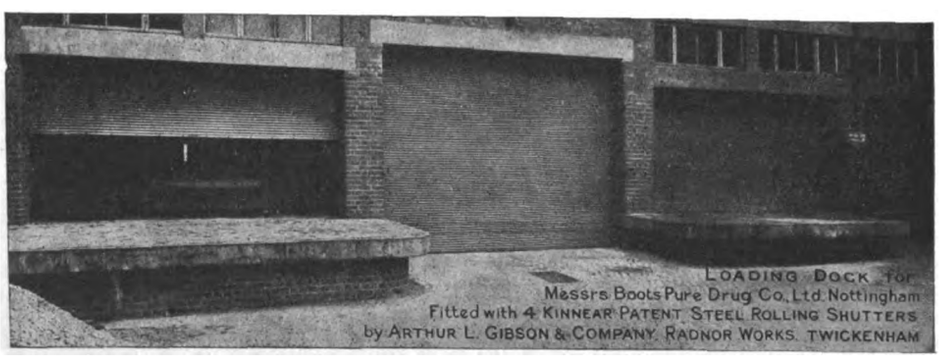
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THE ARCHITECT

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BRITISH TIMBER.

FEW British architects would deliberately avoid using our native timber if it were both possible and convenient. Whilst there can be no doubt as to the possibility in the case of some kinds of timber, there is a very great absence of convenience, and it is to the increase of facility that, as far as the building trade is concerned, the endeavours of the English Forestry Association should be directed in their laudable attempts to foster the growth and use of English timber. The present time, of course, is, for timber used in building, utterly unsuitable for any campaign on behalf of our native woods, except in the limited field opened by the erection of temporary buildings, barracks, hospitals, and so forth, for military purposes. As Mr. Duchesne pointed out in his paper read before the Surveyors' Institution, ash is in tremendous demand for all kinds of military purposes, and he is, to some extent, right in advising landowners to seize the opportunity of marketing all the ash possible, reserving oak and other timbers for which the demand is not pressing. We should, however, desire to add to Mr. Duchesne's advice that, if it is unnecessary, and even undesirable, to attempt to market English oak at the present time, it is none too soon for owners of oak woods to prepare for marketing their oak. It is quite true that modern high-pressure methods of seasoning have greatly reduced the time in which, at a pinch, timber can, after felling, be placed on the market for immediate use; but English oak does not lend itself so kindly to forced artificial seasoning as do many other timbers. and there can be no question, in our opinion, that for joinery purposes English oak is far better seasoned in the old-fashioned way of allowing time, rather than steam, to do the work.

In considering what classes of English woods are most likely to be successful in capturing the English market for building timber, we may, we think, at once rule out all the soft woods, except, perhaps, larch. This is a wood which has not been appreciated by architects to the extent which its colour would justify. It has been regarded rather as a poor relation, chiefly useful for posts and palings exposed to weather. It no doubt requires care in seasoning, in order that its tendency to shrink and warp may not be allowed to spoil its utility as a joiner's wood; but when well and carefully seasoned, it stands well, and as the toughest, strongest, and most durable of all the coniferous tribe, might be suggested as suitable for styles, rails, and muntins of framing. We can imagine quite a pleasant and effective wall-lining of larch framing with yellow deal panels, all left clean from the plane without paint, stain, or varnish of any kind. How many of our readers, by the way, have experienced the rich effect of untouched yellow deal after twenty years freedom from stain or varnish internally?

Our reasons for ruling out British soft woods are, first, the small amount that could be obtained if every fir and pine tree in the country were put on the market to-morrow; second, the economic disadvantage in freight-age cost by which British timber is handicapped as compared with Baltic wood, brought to every little port on the coast by antediluvian sailing vessels worked by Scandinavians at a minimum of cost. The few specimens of Douglas and Weymouth pine that exist are rather botanical curiosities or sylvan ornaments than commercial sources of building timber.

Leaving our soft woods on one side, we have as possible English timbers for building purposes oak, chestnut, walnut, beech, elm, alder, sycamore, and plane. Of these oak has unquestionably the widest field, and only needs a proper organisation of supply by the English Forestry Association to take first place in the specifications of British architects. They already recognise the superiority of English oak, properly seasoned, above all other for durability, but this recognition must not be forfeited by improper supply of sappy, immature, overgrown, or half-seasoned timber, all of which faults have too often been present in material offered during the last quarter of a century. For joinery purposes architects would prefer English oak, despite its greater hardness as compared with Austrian or Japanese, for both in colour and figure it is superior to any imported wood, and, if properly seasoned, is no more liable to warp, shrink, or shake. Care must, of course, be taken by the joiner in its use, but, granting this, English oak will hold true as well as any of the milder varieties.

Chestnut and walnut of English growth would be favoured by architects if the English Forestry Association can maintain a regular supply at economic prices, but of this we have grave doubts, as the trees are valuable to their owners as they stand, both for their fruit and their beauty, whilst there are many industries which are ready to outbid the building trade in price, and probably absorb the whole possible supply.

Beech stands somewhat in the same position as regards demand, and its suitability for building purposes is not on a par with the other woods already mentioned. Modern domestic architecture would probably be ready to absorb all the English elm that could be put on the market at prices that would compete favourably with those obtainable from other industries, but here more modern methods of marketing as urged by Mr. Duchesne are essential. A good many of our domestic architects already have a fondness for elm, but the majority have never had it brought to their notice that there is any chance of a supply at reasonable price, and by that majority it is regarded, when considered at all, as a curiosity troublesome to obtain.

The milder hard woods like alder, sycamore, and plane have their uses for carving, as is well recognised, but with a regular and increased supply there is a possibility of their further and more general employment for panels of framing, in which use they must, to be successful, be prepared to compete in price with Kauri pine. Willow, in its present limited supply, is too valuable for cricket bats and other industries to have much opening in the building trade, but its special suitability for bath tops and w.c. seats is a quality that might be exploited by the English Forestry Association if they are desirous of a further market beyond those at present open.

There is one branch of building-wood supply that has been very much neglected by producers which we think might be seriously considered by the English Forestry Association, and that is the veneer market. We are quite of the opinion that the day of exaggerated regard for so-called truthful construction introduced during the Gothic revival has come to an end, and that the immediate future in architecture will see a more extended use of veneer in the growing preference for simplicity of form and beauty of surface which is one of our present-day tendencies. Veneering in hard woods is not really a sham, but an extension of the workmanlike practice of building up which makes for freedom from cracks and warps, as was well known to the screen builders of both

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East Anglia and the West country in the fifteenth century, and is exemplified by their works. Oak, walnut, and chestnut would all pay for cutting into veneers, and thus their beauty of figure and colour could be made more widely appreciated and utilised under more favourable economic conditions for both producer and consumer.

NOTES AND COMMENTS.

Sir Claude Phillips, with very good reason, returns in the columns of the "Daily Telegraph" to his polemic in behalf of the undefended state of our art treasures. It is unfortunately too much to expect that our present Government, which has, for the most part, so grossly mismanaged the greater matters of the war, should show more energy, determination, and foresight in the protection of art treasures. By the lack of these essential qualities of a success millions of money and thousands of lives have been expended in half-hearted and insufficiently prepared enterprises doomed to failure by indecision and vacillation. The best that Mr. Bonar Law can say for the Government of which he is a member and for the shortcomings of which he is, whilst a member, responsible equally with all his colleagues, is that "it has not been a great success, but it has not been a great failure." This is equally true of the protective measures taken for the safety of our national art treasures. Some of those in the British Museum, some of those in the Victoria and Albert Museum have been removed from their usual places to others of presumably greater safety. But we do not want a few only of the irreplaceable works of ancient art in this country to be secure, we want them all to be as safe as circumstances will permit, just as the nation wants the war prosecuted to an entire success and will not be satisfied with a partial failure. We all want a great success and are not content with avoiding a great failure, whether in the main objects of the war or in the protection of our art treasures.

Realising that our Government is one that does not lead but must be pushed, and only moves when it is pushed by the people, Sir Claude Phillips now forcibly appeals to all the Universities and the great schools, the Royal Society of Antiquaries, the National Art-Collections Fund, the Burlington Fine-Arts Club, the Royal Academy of Arts, the Royal Scottish Academy of Arts, the Society of Arts, the Royal Institute of British Architects, the Society of Architects, the Royal Society, the British Academy, the Royal Society of Literature, the Dante Society, the Athenæum Club, the Society for the Promotion of Hellenic Studies, and, last, not least, the Society for the Protection of Ancient Buildings, and calls upon them to follow the examples of cognate bodies in Italy and raise their voices and use their endeavours to ensure better protection of the monuments of ancient art that our country holds. He says, after recounting what Italians have done:

"Turn from the picture of a whole nation united in the strenuous resolve to do all that may be done, to say all that may be said, for the preservation of the world-famous churches and monuments, the sublime works of art of which they are the trustees, not only for themselves, but for the whole civilised world. Look back at our own monuments and historical buildings, at our own art treasures, second to none in the world. Untouched at present, those safeguarded (!) in the London museums are, nevertheless, daily, hourly, exposed to dangers far graver than any that at present threaten Venice or Northern Italy. This point we have so strongly, so repeatedly, insisted upon that further to elaborate it cannot be necessary. What have *our* universities, *our* academies, *our* institutes, *our* societies for the promotion of art and culture to say in regard to the preservation of these monuments and art treasures, of which we have constituted ourselves the guardians, and which we are morally bound to hand down intact to posterity? As corporate bodies they have taken no formal or official action, they have made no appeals, they have made no suggestions, no prayers, they have remained utterly silent and unresponsive. We have more than once already challenged them to come forth and throw the great weight of their influence into the scale; at any rate, to record that these matters, vital to England and to the world, mean something to them also.

"We persist in urgently demanding a reply from these august bodies. If there be no precedent for what they are asked to do, then let them make one—and make it speedily, for time is short. And if they speak not now, then let them for ever hold their peace, and meddle no more with art or culture."

At the meeting of the Royal Society of Arts, at which Mr. Wooding Starmer read the paper which we give elsewhere (p. 496), M. Josef Denyn, the master Carillonneur de Malines, in his highly technical account of carillons, their installation and their uses, made reference to the importance, before the building of a tower for their reception, to the desirability of consultation between the architect and an expert carillonneur, and, by way of example, pointed out the mistakes that had been made from the musical point of view in the restoration of the belfry at Ghent. We quite agree that no architect should design a belfry without so much knowledge of campanology as will prevent him from adopting the popular attitude that any tower will do for a belfry, as long as it has space sufficient for the bells and strength enough to support them.

That carillon playing is an artistic craft needing special gifts and special training in the executant there can be no doubt, and we trust that after the war the project of founding at Malines a national carillon school, which was on the point of fruition when the German invasion swept into Belgium, may be revived and brought to accomplishment. We are especially comforted to know, and we hope the statement is correct, that at the meeting held by the Society of Arts the belief was expressed that the tower at Malines is practically undamaged and the bells intact. May they remain so till the Boches have been driven out of Belgium for ever.

In presenting the prizes at the Glasgow School of Art, Bailie W. B. Smith, the Senior Magistrate of Glasgow, emphasised rightly the importance of art-training on the commercial side. He expressed the opinion that the prospects for art students were never brighter. There was a demand for artistic design of articles ranging from toys for children to the furnishings of palaces, and if Glasgow was to hold its place in the production of such things it was necessary there should be a centre of training such as that school. There was a demand for originality, and while originality could not be taught, it might be induced, and those who began by copying the art of former times might come to develop an original style. While many of the students of the school would devote themselves to the purely art side, he hoped that many also would apply their art knowledge to commercial purposes. There would be, and was at present, a great demand for artistic designs, and he hoped those would be supplied by the students who had undergone training at such schools, so that our artificers would be encouraged to produce artistic wares which would not only supply the home demand, but the markets of the world. In this connection he referred to the exhibition of manufactures to be promoted by the Corporation of Glasgow, which would indicate how artists might be of service.

In the course of an inquiry at the Bradford Town Hall, when the Bradford Corporation made application for a Provisional Order to extend for a period of five years the operations of the smoke clauses in the Local Acts of 1910 and 1913, Mr. E. J. Smith, Chairman of the Health Committee, said his Committee regarded the subject as of the utmost importance to the general health,

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and they were preparing to do all they possibly could to create a purer atmosphere in the city. The smoke nuisance contributed materially to the city's high mortality from respiratory diseases. The annual average mortality in England and Wales from bronchitis and pneumonia for the five years ended December 1911, was 2.28 per thousand; for Bradford it was 2.42 per thousand. The general effect on domestic hygiene of a smoky atmosphere was singularly deleterious, and in this connection Mr. Smith observed that in that part of the country the average housewife was proud of her window curtains, and could only keep them clean by shutting her windows, thus preventing free ventilation. Alluding to the effect of smoke on allotment gardens, Mr. Smith stated he had seen a cabbage grown in an allotment garden in Bradford which consisted of alternate layers of grit and cabbage right through the vegetable. Mr. Smith mentioned that there were about 400 chimneys in the city, and in most instances they had several boilers, in one case as many as twenty. As a result of the Acts of 1910 and 1913 there had been a diminution of smoke in the city.

A curious point arose in a Liverpool County Court case relative to damage caused by a defective rainwater-pipe, which introduces a source of trouble that will probably be novel to most of our readers as to ourselves. Grease, hair, brushes, cloths, birds' nests, and a multitude of other impediments have been credited before now with the stoppage of rainwater pipes and drains, but fungoid growths seem to be a novel addition to the category of primal causes. Yet we understand that Mr. W. Roscoe Hardwick, analytical chemist, gave evidence on behalf of the plaintiff that the stoppage was due to a fungoid growth of bacterial origin in the pipe, and that such a condition of things would be more likely to occur if, as was suggested in this case, cotton fibre were contained in the down flow. His analysis of material taken from the obstructed pipe revealed the presence of such fibre, but not in a woven state.

Mr. Edward Davies, analytical and consulting chemist, called on behalf of the defendants, agreed that the trouble was caused by fungus, and stated that such growths were not uncommon in his experience, and might occur in water pipes or conduits where there had been no improper usage.

The generally held opinion amongst practical men with regard to the relative susceptibility to corrosion of wrought iron, cast iron, and steel is, we believe, that whilst wrought iron more quickly commences to rust than cast iron and steel, the ultimate corrosion of the purer form of the metal is less; but in a contribution to the Faraday Society dealing with the subject, Mr. J. Newton Friend, D.Sc., gives ample reasons why the question cannot be thus summarily dismissed in favour of one or the other. Whatever laboratory experiments and theoretical considerations may demonstrate, the final appeal must always be to the results of experience and of experiments carried out with a liberal hand on a large scale under actual working conditions, and to these Dr. Friend directs attention. Pointing out that in some such experiences steel has shown superiority, that in others there has been no appreciable difference between wrought iron and steel, and in yet other instances wrought iron has corroded less than steel, Dr. Friend comes, in our opinion, to the correct conclusion that the matter resolves itself into a wider problem; not so much as to whether iron was better than steel, or vice versa, but rather—Which was the best variety of iron or of steel for any particular purpose? It is conceivable that certain makes of wrought iron would prove most useful in certain circumstances, whilst under other conditions the palm would have to be given to steel.

In a paper read before the first meeting of the Society of Antiquaries of Scotland for the session, Mr. P. M. C. Kermode, F.S.A.Scot., gave an interesting account of further discoveries of early cross-slabs in the Isle of Man. The most interesting of these found at the North Keeill, at Maughold Churchyard, is a Scandinavian monument, showing on each face the remains of a long shafted Celtic cross with a cabled border, the shaft ornamented with a carelessly drawn and inartistically designed vertical step pattern. Below one limb of the cross is carved a Viking ship, which is the first example of this device found in the island, and which affords a link with the later monuments of the western isles of Scotland. A runic inscription runs up the shaft, which is interpreted—"Hedin set this cross to the memory of his daughter [H]lif. Arni cut these runes." Though the names in the inscription are new to the district, they appear in Saga literature. The character of the runes differing so essentially from any other specimens found in the island, Mr. Kermode concluded that they were the work of a new scribe, who had come from, or gained his knowledge of runes in, a district other than that of the Manx rune cutters. The ship is realistically treated: it is high at the prow and poop, the bulwarks low amidships; the sail is furled, and instead of the fixed rudder at the stern, there is a steering-oar on the starboard side. Mr. Kermode believed that the purpose of the ship was to indicate the descent of Hlif as, either on the father's or mother's side, from Godred Crovan, from whom both the kings of Man and the Lords of the Isles had derived the ship as an armorial bearing.

ILLUSTRATIONS.

COMMEMORATION ROOD SCREEN, THE PARISH CHURCH, WALSALL.

THIS screen has recently been made and fixed by Mr. Joseph Phillips, of Liverpool, the gates being made by Mr. Imison, of London. The design was prepared by Mr. Charles E. Bateman, F.R.I.B.A.

THE CHURCH OF THE HOLY TRINITY, MERRYLEA.

THIS church, which was dedicated and opened for public worship on Saturday, December 11, was built to supply the needs of a residential suburb of Glasgow. It consists of a nave separated from side aisles by arcades of freestone. The nave has an apsidal termination to the east, in which are placed the table and the elders' stalls. The latter are of stone, with arcaded backs. The font has been placed in a smaller apse at the end of the side chapel. At the end of the other side aisle an organ chamber has been provided, with two arches of dressed freestone. The principal entrance is in the back of the tower. Two side exit porches have also been provided. The pews, chairs, and other furniture are of oak, and the roof is of dressed timber open to the ridge. As will be seen, the style is Norman, which lends itself to a very dignified monumental effect.

The architect is Mr. P. Macgregor Chalmers, F.S.A.Scot.; the builder is Mr. John Cumming, jun., Glasgow; the oak furniture is from the workshop of Messrs. A. McKay & Co., Glasgow.

PRIVATE HOTEL, EASTBOURNE.

THE drawing reproduced shows the south front, facing the sea. The walls are hollow, and are finished externally with cement rough-cast to a cream tint, and the roofs are covered with small Portmadoc slates.

The building is designed as a residential hotel, the rooms being grouped in suites; and the accommodation comprises forty-seven bed- and sitting-rooms on the upper floors, and large lounge, coffee room, drawing room, private room, and smoke room on the ground floor. Main entrance is on the north side from Chiswick Place.

The general contractors are Messrs. G. Bainbridge & Son, of Eastbourne, and the sub-contractors include Messrs. J. Smith & Son, Brighton, heating and hot-water supply; Mr. G. H. Watkins, Eastbourne, electric lighting, bells, and telephones; Messrs. Smith, Major &

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Stevens, Ltd., Northampton, electric passenger and service lifts; Messrs. H. T. Gaze, Ltd., London, fibrous plaster decoration. Clerk of works, Mr. F. W. H. French. The architect is Mr. Sydney G. Scales, M.S.A.

DESIGN FOR SMALL COUNTRY HOUSE, SOUTH WALES.

The house has cavity brick walls, strengthened at each corner with buttresses, the walls are covered externally with cement rough cast whitened, and is roofed with green-stained tiles, and the chimney pots and caps are stained black. The tiles let in the wall on the road elevation are 9 in. by 9 in. green-glazed tiles. All the exterior wood and ironwork is painted green and the casements and bars are painted white. The estimated cost of this house is £875. The design was prepared by Mr. H. Douglas Blessley, Licentiate R.I.B.A.

ENGLISH TIMBER DURING AND AFTER THE WAR.*

A detailed report of the demand, sales, and prices of English timber since the outbreak of war would be interesting but very long, and I can here deal with the matter in general terms only. I have also a rooted objection against quoting prices—excepting to illustrate a point—if separated from details of locality, quantity, size, and character of the trees, cost of transport, &c. It is common knowledge that good prices have ruled for ash and other timbers in special demand, although I fear that in many cases the landowner did not receive his proper share of the increased price. Without wishing to labour a point unduly, I think all must admit that the war has illustrated strikingly the great importance of organisation in marketing timber, and the very great need of a central body to keep owners and agents informed as to what is or is not in demand, and guide them as to prices ruling.

The great demand has been for ash for all kinds of military requirements, for general service and limbered wagons, for felloes, for aeroplane skids and ribs, for tool handles, for picketing pegs, and, in fact, for any purpose where elasticity and strength combined are required. This demand shows no present sign of slackening and landowners should market all the ash possible, so as to help with war supplies while obtaining record prices. It also illustrates the great importance of placing on the market what is in special request, and, if practicable, of reserving oak or other timbers for which the demand is not pressing.

Merchants often criticise—not always in the most complimentary terms—our ignorance of the requirements of their trade, and of the variety, size, and character of the timber that should be grown, and of its marketing. They are often unduly suspicious, however, when we discuss trade requirements, imagining that we wish to enter the timber trade.

It is important that people interested in woods should be better informed as to the markets for timber and the requirements of merchants and consumers. The various timbers can then be placed on the market more in the form required by purchasers and particular trades, and so secure the best results. It is part of the English Forestry Association's work to give information on these points.

Since our main object is to encourage the demand for the timber, and to see that this demand shall be properly met, the Association should receive the hearty support of the timber trade.

I would appeal strongly to the timber trade to cease from so constantly decrying native timber. It is perfectly natural that a merchant should wish to buy as cheaply as possible, and with that view to enlarge on the inferiority of the timber he is good enough to purchase. I fear we take many of these bargaining criticisms far too seriously, and that they are advertised far too generously to consumers and others. For many of the best markets in oak, diameter is much more important than length of butt; but, because want of length is a fault that can be raised, we are apt to think that length is all important.

The native timber trade is carried on under many difficulties; we can do much to help place it on a more satisfactory footing, to the advantage of all concerned. I would appeal for a better spirit of co-operation, and would ask the trade to institute enterprise in developing new markets. Merchants must see that we cannot allow the welfare of our woods to be prejudiced.

Far more knowledge is wanted as to the causes which govern markets and prices and influence the demand for the different timbers. Many people are surprised because oak generally has not commanded a ready sale or an increased price during the war. The demand for oak has been greatly handicapped by existing markets (such as railways), postponing purchases of oak and the building of wagons, &c., and turning their activities to the production of munitions and war supplies. The urgent demand for ash and other timbers required for war purposes, combined with the labour and hauling difficulties due to recruiting and the commandeering of horses, has resulted in merchants concentrating all their efforts on these timbers to the exclusion of oak, &c.

The great dearth of sawyers and difficulties attending conversion have affected demand for various timbers. It has had also the curious result that, although small larch, Scotch, &c., found a ready sale at good prices for pitwood, &c., the larger sizes were often difficult to dispose of, even at lower prices. Sleepers have commanded a record price, and it is regrettable that our Scotch could not be converted much more extensively for this and other purposes connected with camps.

Elm, owing to its freedom from splitting and its general toughness, has been in demand for various war purposes, and also in some districts for chair seats, boat building, &c.

Beech has been in demand for tent pegs, saddle trees, chairs, furniture, toys, and all descriptions of turned parts.

Very prime oak has been in demand for artillery spokes and general service and limbered wagons, and for various purposes.

There has been a large demand in some districts for coppice poles and inferior timber and thinnings for defence work, barbed wire entanglements, fuel for the camps, and numerous purposes.

The actual demand for any particular class of native timber depends on sizes and other points, but particularly the actual locality in which the timber stands, and whether a Government contractor or other special demand is within easy reach of the district.

Dealing with the native supplies is now almost entirely dependent on labour and hauliers, and also transport by rail. These difficulties are known to all and apply in every direction. It is needless for me to emphasise the very serious nature of the position, particularly when all the native supplies are so urgently required for military purposes or for national industries. I am convinced that a way out of the difficulty must and will be found, especially in view of the difficulty and cost of shipping; the importance of the foreign exchange and stopping imports; and the necessity of being more independent of the Baltic or other supplies.

It is deplorable that, in connection with timber and woods, large sums have been lost by landowners simply through lack of advice and information about the sale of timber. Large estates command the services of an experienced agent, and can afford to pay experienced foresters or advisers. There are many estates in this country, however, where the area of woods does not justify the employment of an experienced permanent man, or where predominating interests render the intermittent sale of timber of secondary importance.

* Abstract from a Paper read by Mr. Martin Collier Duchesne, F.S.I., at the Surveyors' Institution, December 13.

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Unfortunately it is not unusual for a woodland owner to consult an estate hand or a man who has no knowledge of the value or the sale of timber, and falls an easy prey to the timber merchant or timber agent. This sad lack of knowledge on the part of producers has depressed prices, encouraged timber rings, and is particularly unfair to adjoining estates. It is therefore important that there should be facilities for obtaining experienced men to advise when advice is needed.

I should hesitate to bring up this question, important though I believe it to be, were it not sadly emphasised by the effect of the war on some estates. Landowners in some cases have been severely hit by the war, and, with the reduction of income from shooting, rents, &c., added to the heavily increased taxation, are in urgent need of funds.

One of their means of raising money is their reserves of timber. This timber may be mature oak, or other timber difficult to deal with, and requires men specially experienced in markets for the timbers. There are cases of oak and other good timber being piteously sacrificed. It often happens that an owner wishes to raise a certain sum from his timber to meet a sudden liability. It is then important to have full knowledge of how this sum can be most readily obtained and with least damage to the estate or future of the woods. The sizes in demand for special markets, the prospective values, and how to lot or offer the timber to best advantage, are other points on which assistance is sought. It would be in the best interests of native timber and our woods if the best advice were always obtained on these points.

To prevent any misapprehension, I should state that I am not myself in general business, and that I do not, unless in exceptional circumstances, act in a professional capacity. I am delighted to give any information or help that I can in an honorary capacity. In cases where general information is desired I will give it willingly, and if required will suggest the best man to advise professionally on all details. I have no wish to interfere between owners and their present advisers, but rather to co-operate with the latter to ensure the best results. I am anxious to prevent the needless losses that often occur and to render assistance when such is desired.

In an earlier Paper I have dealt at length with the history of coppice, and its conversion. I laid stress on the possibilities of a revival of rural wood industries to ensure proper markets for our coppice and poles. Seeing the enormous demand there is for wood in our industrial centres, and the large markets for wooden articles we have in our midst, I am convinced that we can do much more to cater for this demand. Given extensive organisation, especially for the sale of goods manufactured in rural districts, we could use our coppice and inferior timber to a far greater extent than we do.

The War has made the revival and expansion of these industries specially important owing to the advantages they offer for the employment of disabled and discharged soldiers and sailors. In fact, it is doubtful whether any other scheme could be suggested that offers so many advantages, or which could employ so large a number of disabled heroes. It would work in, to a striking degree as I shall illustrate, with agriculture and land settlement, and I am sure everybody will sympathise with schemes for ex-service men.

Rural wood industries offer the following exceptional advantages:—

1. The work is simple, and no lengthy training is necessary.

2. The work is not done in factories to which the workers have to travel considerable distances.

3. The work employs large numbers of men around their cottage homes or in the woods.

4. The work does not require machinery or expensive plant or tools.

5. The goods made are not perishable, nor is delivery urgent.

6. The markets for the goods are very large, and can hardly be glutted.

7. The raw material is easily obtainable cheaply in the country, where cost of living is low.

In the case of the wooden hoop and other industries, the great problem latterly has been to secure labour, owing to rural depopulation and the attraction of the town. This in spite of better prices and fair wages ruling in the hoop industry. The ex-soldier would be in receipt of a pension which would help him along until he became thoroughly skilled, and he would be an acquisition to agriculture during busy seasons and in haytime and harvest.

I will illustrate my point from the wooden barrel hoop industry. Before the outbreak of war there were twenty million wooden barrel hoops required for the fishing trade on the East Coast alone, of which quantity probably 90 per cent. were imported from the Continent. The reason given by one of the largest coopers for the small proportion of native hoops was want of organisation in marketing. They were not necessarily either inferior in quality or dearer than the Continental hoops. It the case of the home produce it was difficult to ensure proper supplies, and their distributed and disorganised nature greatly prejudiced their sale. Owing to better organisation, it was easy to arrange delivery of foreign hoops in large quantities at a given price, and whenever required. Coopers agreed that for a good, durable hoop there was nothing better than the English hazel hoop, properly made and graded. I need not remind you of the large areas of hazel underwood to be obtained at a nominal price. The competing foreign hoops come principally from France, and it was generally known that the cost of producing these was likely to increase. The cheaper Dutch willow hoop is used, where a durable hoop is not required, or when the barrel is non-returnable.

The importance of a rural wood industry to the countryside is proved by the Dutch hoop industry. A large hoopmaker in Holland informed me that he found work during the five winter months at good wages for probably 6,000 people distributed in their village homes. They were engaged in agricultural and similar pursuits during the rest of the year. The failure of old rural industries in this country has been due principally to want of organisation, especially in marketing the goods. It should be easy to arrange for a central organisation to take up the marketing in these industries, and serve as a collecting centre of supplies. The goods would then be sold to the consuming centres, and every step taken to develop markets, and to persuade customers of the value of the goods. I would remind you of the vast quantities of pick, hammer and all classes of handles required in collieries, engineering works, railways, and in other industrial centres. For these handles, English ash, chestnut, and in some cases oak are suitable. There are large areas of ash poles, chestnut poles and oak poles available at almost nominal cost. We ought also to be able to reduce the imports of wooden rakes, scythe handles, mop and broom handles, and many classes of turned goods. We have, therefore, large markets, in many cases fair prices and cheap raw material in abundance. With proper organisation the cost of production should be low enough to enable us to compete successfully with the foreigner to the great advantage of rural districts and the country.

LAST week services were held to open the new Salem Calvinistic Methodist Chapel at Pwllheli, one of the largest chapels in North Wales, which was some time ago burned down by an incendiary. The new chapel has been designed by Mr. R. Lloyd Jones, architect, Carnarvon, the builder being Mr. Evan Jones, Dolydd, and the cost £6,000.

THE Royal Academy of Arts give notice that the President and Council will proceed to elect two Turner annuitants. Applicants for the Turner annuity, which is of the value of £50, must be artists of repute in need of aid through the unavoidable failure of professional employment or other causes. Forms of application can be obtained at the Royal Academy of Arts, Piccadilly, W., and must be filled in and returned not later than January 8, 1916.

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BENEFITS DERIVED BY AN URBAN DISTRICT ADOPTING A TOWN PLANNING SCHEME.*

By W. LOUIS CARR,
Surveyor of Ruislip-Northwood Urban District Council.

THE town-planning scheme promoted by the Ruislip-Northwood Urban District Council received the approval of Parliament on September 7, 1914, and as the period of twelve months, during which all claims for compensation and betterment have to be lodged, has now elapsed, the author is able to state generally the benefits which have been secured to the public and the landowners, and to give some information as to the claims for compensation and betterment, which latter subjects have seriously engaged the attention of councillors and officials throughout the country.

The modifications of the "General Provisions" are not dealt with in this paper, but it will be of interest to describe the alterations in the draft scheme as shown on the 25-in. ordnance map, which may be summed up as follows:—

STREETS AND FOOTWAYS.

The north end of a 60-ft. street, practically running north and south through the centre of the district, has been amended to obtain a better outlet across some golf links. In the original scheme a road was proposed across these golf links, but, owing to heavy opposition, the council decided to drop it; the Local Government Board have, however, reverted to the original scheme. Another alteration was with regard to a new road branching from an existing road which was shown to run over existing buildings. This was amended so as to avoid pulling down the buildings. A further alteration was a very interesting one. An alternative line of route was shown for a new 60-ft. road, but the Local Government Board decided that alternatives could not be shown, and a definite line had to be fixed. In another case two streets were indicated on the map by dotted lines, together with a single alternative road. The Board decided that the single alternative road had to be omitted. In the case of a new road, which was shown as 40 ft., but had to be increased to 50 ft., the centre line had to remain as shown on the map. A number of new footways were amended as regards their width and position, and two footways which had been shown to be diverted were omitted.

APPROPRIATION OF LANDS.

One cemetery, allotments, land for store-yards, and a refuse destructor, together with certain open spaces, were acquired under the Public Health Acts during the progress of the scheme, and could not therefore be included in the approved scheme. With regard to the suggested second cemetery in the south of the district, the Board considered that the time was not ripe for another cemetery to be provided in this quarter, but my own opinion is that a mistake was made in not allowing us to acquire this land, as later on, in all probability, we shall have much difficulty in securing such a suitable site as the one scheduled.

The owner of the land originally selected for the purpose of a new sewage works objected strongly to the position, but willingly gave us the option of another site about three-quarters of a mile away. Unquestionably this will be a great advantage to the district, and it will enable a greater area of land to be satisfactorily developed without any nuisance being caused when the new sewage works are made.

Differential treatment was proposed for railway land, but after negotiations with the companies we were able to come to agreement with regard to all their various parcels of land in the district, which are now to be treated in the same way as the property of any other landowner.

* A Paper presented at the seventh annual general meeting of the Institution of Municipal Engineers on November 27.

BUILDING LINES.

The building lines shown on existing streets have been approved, except in one case, where it was reduced from 25 ft. to 15 ft. The reason for this alteration was that the ground receded very quickly from the roadway, and serious difficulties would have arisen with regard to connection with sewers, aspect, &c. It would be advisable here to observe that in future schemes, if building lines are reduced under similar circumstances on one side of the street, arrangements should be made to set them back on the other side.

LIMITATION OF THE NUMBER OF BUILDINGS TO THE ACRE.

The first alteration was the inclusion of a further area of land to carry from eight to twelve buildings to the acre, the reason being that this area lent itself to more equitable development than the land unit which had been fixed. A further alteration enables us to secure in the future a more gradual form of development. Another small portion was scheduled under the draft scheme as six buildings to the acre, but after the inquiry, at which the owner put a number of facts before the inspector, this limitation was altered by agreement between the council and the owner, with the result that approximately ten buildings to the acre can be erected. As the result of opposition, the Local Government Board agreed to a certain area being scheduled at eight houses to the acre instead of six as provided in the draft scheme.

CHARACTER OF BUILDINGS, &c.

As a result of the inquiry, certain alterations were made in the compulsory and optional shopping and factory areas.

With regard to the colouring of the final map it should be pointed out that after the inquiry it was found necessary to amend the whole of the colouring to fit in with the new "reference" which was required. The Ruislip-Northwood Urban District Council and the Watford Rural District Council have to administer this scheme in their respective areas, and a copy of the map of the final scheme, so far as it relates to the part of the area in the Watford rural district, has to be provided by the council.

NEW STREETS.

There are some eighty-three new streets and footways to be constructed under the scheme, *and in the lines and of the width indicated on the map.* The words italicised require special notice, as the Local Government Board are insistent upon this being carefully considered when the scheme is prepared, and strictly adhered to afterwards. The district will benefit greatly in future by the linking up of existing streets and main traffic routes, and also by the improved access to railway stations and the bringing of certain outlying areas into communication with others by streets with good gradients, instead of by streets which would have a gradient of 1 in 7. For instance, when one of the streets is made a distance of about three miles will be saved in communication between certain parts of the district.

Another great benefit, combined with economy, will be derived by the laying out of the streets on the line of the outfall sewers to the existing and new sewage works. Arrangements have also been made to take the house drainage from these new streets. A certain amount of the cost of these sewers will be defrayed by the frontagers, but such sum is not payable until the land is used for purpose other than agriculture, except by special agreement. In my opinion many thousands of pounds will be saved to the district by thus laying out these streets to serve all purposes for which streets are generally required.

Streets shown on the map of a greater width than 40 ft. will be constructed and paid for by the council, but it is possible that as the council now have the power to make up streets with grass margins, &c., that no extra expenditure will be incurred beyond that of

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scavenging and maintenance. Thirty widenings of existing streets are shown on the map; these are in sixteen streets, and affect forty-four different owners.

When any plan is submitted for a new building to be erected in any of the existing streets, the council can require the street to be widened to the width shown on the map, and will bear the cost. If the council require a street to be widened before any plan for a new building is submitted, they have power to do the work after giving two months' notice. The cost of carrying out widenings in such cases will include compensation for any buildings required to be altered, demolished or removed, while the construction of the necessary carriage and footway and fencing off the land has also to be paid by the council.

As has already been stated, the council have power to lay out with grass margins, or plant with trees, or lay out as gardens, any part of any street repairable by the inhabitants at large, and the council may maintain in good order such grass margins, trees, or gardens, and alter or renew the same from time to time as circumstances require. They may add to the carriageway or footway any part of such grass margins, whether planted with trees or laid out as gardens, and may from time to time alter or re-arrange the parts of any street laid out as a carriageway or footway respectively, provided that the council shall not obstruct access to premises abutting on any street from the metalled or paved portion of the road.

The owners of lands abutting upon any new street shall, until such street shall become a highway repairable by the inhabitants at large, maintain such street, fences, grass margins and trees, and embankments and other works therein in good order and condition. The council may include in any private street works any works which they may consider necessary for fencing off and laying out any street, or any part thereof, with grass margins and planting the same with trees, and apportion the expenses thereof as would be done under the Private Street Works Act. The permission given to the council under this Act to lay out existing streets or any new streets with grass margins, &c., is very important, and besides leading to much amenity in the district, will also involve less expense in construction and upkeep; while in the case of streets about to be taken over by the local authority, a reduced expenditure has to be borne by the frontagers.

In shopping areas where a carriage road is intended to form the principal approach or means of access to buildings, we demand that the kerb or outer edge of the footway of the street in front of such buildings shall be set back a width of 6 ft. from the side of the carriageway, and the width of the footway shall be reduced accordingly. The intervening space between the new line of the kerb and the original side of the carriageway shall be so constructed as to fall towards the carriageway. This requirement is believed to be quite new, and should prove of great value, as by means of it tradesmen's goods can be delivered by vehicles standing on this set-back, where they will not impede the fast traffic.

Particulars of the relaxation of by-laws with respect of (1) new streets (short streets), (2) as to width and construction of such streets, where land for open spaces is set apart, or wide streets are provided, or where the streets are formed around quadrangles, are all set out in the "General Provisions"; but it may be said that with the experience already gained in the district from the construction of streets of this character, the council and the owners are satisfied that they are not only unlikely to be a burden on the ratepayers, but are more economical to construct, sewer, light, and scavenge.

If at any time the council desire to construct any of the new streets on the map, they can do so upon giving six months' notice of their intention. Without this provision it is probable that the whole scheme of streets shown would be wrecked. Where the map shows a new street exceeding 40 ft. in width, communicating at each end with a highway repairable by the inhabitants at large, the owner of the land over which it passes may, if he wishes it to be constructed, give notice to the council, who must construct the road within six months. Before the development of any estate can now be proceeded with the council can require the owner to furnish plans and particulars showing generally a scheme for the development or laying out of the whole of such estate or such part thereof as the council may reasonably require.

All streets constructed otherwise than by the council shall be constructed with such turning and crossing places, and on such sites as shall be required by the council. It will be seen, therefore, that development cannot take place until an owner has first received the approval of the council to his scheme.

The Local Government Board may, on the application of the council or owners, sanction any modification in detail with reference to the position or construction of any of the proposed new streets or proposed widenings shown on the map. In the author's opinion, sufficient latitude is not given to modify the position of the streets marked on the map. In several cases no harm would have accrued by fixing a limit of deviation between certain points (on one owner's land, of course) of, say, 40 ft. to 60 ft., as in the case of projected railways.

Under this scheme twenty-one highways are to be diverted and stopped up, but not until certain new streets or footways have been constructed to the satisfaction of the council and opened up for public traffic. Where any such proposed new streets are constructed in portions, such portions of the public highways as correspond to the portions of the said new streets which have been made may be diverted or stopped up, provided the council are reasonably satisfied that an equally convenient right of way has been provided for the public use; and where necessary a temporary right of way must be constructed from the portion of the proposed new street which shall have been constructed to that portion of the said public highway which is not, at that time, to be diverted or stopped up. For the purpose of any further diversion or stopping up, such temporary right of way shall be deemed to be part of the main portion of the said public highway. It is estimated that by these diversions a saving of some hundreds of pounds has been effected by avoiding the lengthy and technical process of obtaining an Order of Quarter Sessions, apart from the difficulty in some cases of strictly complying with the requirements of the Highway Act, 1835.

OPEN SPACES.

There are about 155 acres of open spaces shown on the map, of which 106 acres have been acquired under agreements, and 49 acres are scheduled as public open spaces. The estimated value of the land given to the council is from £8,000 to £10,000. Private open spaces shall be maintained in good order, and, when required by the council, shall be fenced by and at the expense of the owner. If at any time a private open space, or the fencing, becomes neglected, or a nuisance, the council may, after giving not less than fourteen days' notice of their intention, execute any works for the purpose of maintaining the same in good order and properly fenced. Any expenses incurred by the council are recoverable from the owner of such private open spaces.

When any private open space is conveyed to the council without payment, they may, subject to any conditions under which the land is acquired, make special regulations with reference to any matter affecting its use, and may demand rent or other charges for its use. This power of controlling private open spaces is very useful, as under its provisions the area can never be built on, and an amenity is secured not only to the houses in the immediate neighbourhood, but to the district as a whole. A few valuable private open spaces are shown on the map, and many more will probably be added as the scheme develops. The Charity Commissioners' lands have been secured as private open spaces.

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Compensation may be claimed for the foregoing items but it will be well now to consider the benefits which have been secured by our Act without the payment of subsequent compensation.

Spaces About Buildings, Including Building Lines.

The building lines shown upon the map along existing streets averaged a 25-ft. set-back, and excepting in one small instance they have been allowed. It is provided that if any building has been erected, or is in course of erection, since the date of the resolution of the council applying to the Board for authority to prepare the scheme, nearer to a street than the building line shown on the map, the council may require the owner to pull down so much of the building as is nearer to the street than the said building line. In one case a building line of 7 ft. was shown, but an owner built in front of this very reasonable line, with the result that he will now have to pull down where he has infringed.

In streets where no building lines are shown on the map no buildings can be erected nearer to the centre of the street than 30 feet, or nearer to the boundary of such street than 15 feet. Provisions are inserted with regard to dwellings round quadrangles, but in any case there has to be a width of 60 feet between every house. There are also saving clauses with regard to lodges appurtenant to a dwelling-house which may be built in advance of the building line, and also in the case of long frontages, say, a continual frontage of not less than 300 feet, where parts of such building may project 7 feet in advance of the general building line, providing the projection does not exceed one-fourth of the total length of the frontage. The above building lines do not prevail in the case of shopping and business premises, the lines for which are practically set out in the "General Provisions," and vary according to the different widths of the streets. This is another means by which to secure the extra width of the carriage-way to business premises.

Another important provision is that no post, rail, or other obstruction shall be erected in front of the forecourt of any shopping premises; but cellar-flaps are allowed, provided they do not project more than 3 feet in advance of such premises. The building lines for buildings and projections on corner sites are specially provided for. Bay windows, chimneys and porticos are allowed to project 4 feet in advance of the building line, except in the case of a street exceeding 40 feet, when they may project 5 feet, provided that these projections do not exceed three-fifths of the total width of the buildings, and are not in any case nearer to the boundary of lands belonging to another owner than the extreme amount of such projections.

The proportion of the area of a site which may be covered by shops and other buildings is one half of the whole area of the curtilage, with the proviso that in the case of a shop the extent of the buildings shall be measured at a level of 14 feet above the mean level of the footway in front thereof. This appears to be a reasonable provision. With regard to dwelling-houses, one-third of the whole area may be covered with buildings not exceeding one storey in height and one storey in the roof; but in cases of larger buildings the area covered shall not exceed one-fourth.

Certain provisions are made with regard to air-space to habitable rooms. This is a most important provision, as, to a certain extent, it stops the erection of houses with kitchens facing each other at a distance of, say, 2 feet or 3 feet away, which are practically always dark and have bad ventilation. The clause with regard to the projection of wing buildings is another important one, the idea being to stop the addition at the rear of premises of long wing buildings, which retard the free action of the air and sunlight to the back of the premises.

Limitation of Number of Buildings to the Acre.

In the clauses which have been framed to carry out the limitation of the number of buildings, regard has been had to the various areas in the district, the development of which have been commenced in a certain way. A limitation of four buildings to the acre is made for the highly residential part; six to the acre is the rate for the areas at present developing; eight and twelve to the acre is also adopted in other areas for the same reason; while twelve is also adopted for the shopping and factory areas, where it is desirable that more buildings to the acre should be allowed both to secure artisan and working-class buildings near the places of employment, and also because by reason of the shops and business premises it would not pay to erect better-class houses.

The unit of 5 acres has been considerably discussed, but the author cannot suggest any other scheme to carry out the limitation in a more satisfactory manner. The working of this land unit is not easy, and possibly about 9 acres would be a good unit to adopt. In all areas, with the exception of land specially set apart for factories, shops and business premises, private or professional dwelling-houses, with necessary stabling, &c., can alone be erected.

No domestic building (other than flats or sets of chambers) erected in the area of twelve buildings to the acre, may contain more than two storeys, exclusive of any storey in the roof.

Character of Buildings.

In selecting the areas to be restricted to buildings of the warehouse class, shops, or business premises, consideration was given to the lay of the land, the position of the railway stations, the convenience of access, and the amenity of the district. The area for factory purposes has been extended in the vicinity of the existing sewage works.

The clause relating to the height of windows in habitable rooms received considerable attention, not only by the council, but also by landowners, builders, &c., and the final form represents the utmost advance that could be made; but we believe it will be of considerable value generally to the health of the district. This provided that no bedroom or other habitable room shall contain less than 500 cubic feet, and in any dwelling, one living-room at least shall be provided, which must have a floor area of not less than 144 square feet, and contain not less than 1,132 cubic feet, and one bedroom which must have a floor area of not less than 132 square feet, and a cubical capacity of 1,000 cubic feet. It is hoped that considerable good will emanate from the provision which enables the council to require reasonable alterations in any building, the character of which is objectionable on account of the design, or the undue repetition of the design, or the materials to be used.

Sanitary Conditions and Amenity.

With regard to the vexed question of combined drains, a clause has been secured which it is hoped will solve the problem. Every house has under this scheme to be provided with a pantry or larder which shall have a window opening into the external air, and in the case of a dwelling-house adapted to the occupation of more than one family, a separate pantry or larder shall be required for each. It is also provided that every domestic building constructed for use of more than one family shall be provided with separate closet accommodation for each family. To some extent these clauses will prevent houses being let for two families without proper accommodation being provided. Further provisions are desirable, but their inclusion could not be obtained.

Frequently private gardens are in such a state as to be a nuisance to neighbours, but under the Order, on the report of the surveyor that the nuisance can be abated, the council may do what is necessary, in default of the owner doing it, and can recover the cost. In the Ruislip-

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Northwood urban district, in common with many others, a great deal of untidiness and irregularity occurs in planting and fencing of forecourts of premises, which detracts from the general appearance of the district. To remedy this the council have power to agree with the owners or occupiers to lay out, plant and fence such forecourts and maintain them at the expense of the council.

Advertisements are prohibited, except in the factory and shopping areas; but this prohibition does not apply to the exhibition of traders' names or notices on public buildings. Goods for sale or exhibition may be placed in front of premises, but not more than 3 ft. beyond the building line. This is a most useful provision, and will be of much assistance to the council in keeping the streets from looking untidy and irregular. Considerable criticism has been made of the clause dealing with the height of fences, but it can still be said that the council are glad to have got this clause, and they have not the slightest difficulty in carrying it out. It is beneficial to the district to obtain solid walls or fences set back as far as possible from the back line of any street.

A careful consideration of all the clauses, which are set out in more detail in the "General Provisions," should prove a great stimulus to local authorities to promote a town planning scheme for the benefit of their community, for it is unquestionably a fact that the health, welfare and general tone of a district would be greatly enhanced by similar provisions to those included in the Ruislip-Northwood Town Planning Order.

Compensation and Betterment.

Only four claims for compensation have been received, and two of these have practically been disposed of. As to betterment, thirteen claims have been made, totalling some £11,000. The cost of preparing the scheme, from start to finish, was about £700. A statement of expenditure was given at the inquiry on the draft scheme, regarding the purchase of land for open spaces, cemetery, allotments, recreation ground, and destructor; but these items were struck out as they had been acquired under the various Public Health Acts during the progress of the scheme. The proposed expenditure on another cemetery site at Ruislip was dropped after the inquiry. The estimated expenditure for the demolition or alteration of buildings, for compensation in regard to property injuriously affected by the scheme, for roads abutting on open spaces, for making up or alteration to roads or footways, and widenings, and for other purposes, such as fencing of open spaces, &c., remains about the same now the scheme has been approved. The greater part of this expenditure, however, is not likely to be incurred for many years. The receipts estimated to be obtained from betterment claims are largely increased from what was originally anticipated.

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

The London and Middlesex Archæological Society attained its Diamond Jubilee on Tuesday, December 14. In celebration of the event the Lord Mayor received the members and friends of the Society at the Mansion House on that day. At the meeting an interesting survey was given by Sir Edward W. Brabrook, C.B., Director S.A., the president, of the history and of the progress of archæology in London during the past sixty years. From it we take the following extracts:—

On December 14, 1855, a meeting was held at Crosby Hall to inaugurate a society which should be for "our grand old City of London and our noble metropolitan county," as the chairman of the meeting put it, what the archæological societies that were then being formed in various parts of the kingdom were for their respective counties. It is a striking evidence of the changes which time is continually effecting that the very hall in which the meeting was held has ceased to be in the City. It still remains in the county, having been re-erected at Chelsea. Thus it is that the very greatness and prosperity which London has enjoyed all through its history militate against the preservation of the relics of that past greatness and prosperity, proud as the citizens of London rightly are of those relics.

As far as I know, there is not one person now living of those who attended the inaugural meeting; there certainly is not one left who took an active part in it. I became a member in 1865, so that this diamond jubilee is also the fiftieth anniversary of my membership, as this week was the fifty-fifth anniversary of my election as a Fellow of the Society of Antiquaries. I have mounted each step of the official ladder of this Society. I have also attained the age spoken of by Ecclesiastes when men have fears of that which is high.

Our associations with the City and the City Companies have been agreeable. There is hardly a hall which we have not visited and endeavoured to study the history of the guild and of its more eminent members, and the archæological associations of its treasures. Our transactions embody much useful information on all these points—especially the important discovery in relation to the history of London trade guilds made by Mr. J. R. Daniel-Tyssen, in the records of the Commissary Court of the Bishops of London.

Early in the history of the Society a magnificent exhibition of antiquities was arranged in Ironmongers' Hall, and the catalogue raisonnée of that exhibition was drawn up by a committee of our members. It fills two finely illustrated quarto volumes, and is frequently referred to as a work of authority. The editor was Mr. George Russell French, an able architect and antiquary.

To our publications we are able to refer with satisfaction. The amount of original research which they embody has earned for them a high reputation. The first series of our transactions is in six volumes, and the third volume of a second series is in progress in annual parts under the editorship of Mr. Bonner.

For many years we held regular monthly meetings in the evening for the reading of papers and the inspection of objects of interest brought for exhibition by our members. The proceedings at them were recorded during several years as a separate publication. Any inconvenience that might arise from this has been much mitigated by the insertion in our regular transactions of several of the more important papers read which had special relation to the history of London and Middlesex.

There is in the Guildhall Library a permanent record of the Society's work in the form of an armorial window representing the minor Companies of the City. I have formed a strong opinion that heraldic devices, governed as they are by the strict laws of blazonry, devised for the very purpose of harmonious balance and brilliant effect, afford the most beautiful and appropriate adornment of a fine building, and I think I may point to that window as an instance.

While we can congratulate ourselves upon our sixty years' work, we must confess that we might have done more if we had had ampler means. Our financial position is sound; but we ought to have many more members and a larger income.

I turn now to the progress of archæological science generally during the last sixty years.

At the beginning of that period and during many previous years a deplorable course of destruction, under the name of "restoration," had been pursued with respect to a vast number of the ancient churches of the country. On May 1, 1855, the Council of the Society of Antiquaries adopted a memorandum on the subject in which it was stated that the destruction of the character of ancient monuments which was taking place under the pretence of restoration was a pernicious practice and an increasing evil. They feared that unless strong and immediate measures were taken to remedy it the monumental records of England would before long cease to exist as truthful records of the past. They were convinced that the indiscreet zeal for restoration had inflicted more injury on these monuments than time and neglect together had caused. Time and neglect

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may impair and in time destroy, but do not add to a building nor pervert the truthfulness of monuments. Restoration may produce an imitation of an ancient work of art, but it falsifies the original, which can no longer be an example of the art of the period to which it belonged. The more exact the imitation, the more it is misleading. A monument restored is frequently a monument destroyed.

They thought that, if the public at large really knew how imperfectly the principles and practice of ancient art were understood, and how very few of the so-called restorations had any just pretensions to fidelity, and if the public could appreciate the rash presumption of those who in general recommended and undertook such work, much less would be heard of money being lavishly spent in thus perpetrating irreparable mischief; and they strongly urged that, except where restoration is called for in churches by the requirements of Divine Service, or in other cases of manifest public utility, no restoration should ever be attempted, otherwise than in the sense of preservation from further injuries by time or negligence.

This vigorous protest had some effect in modifying the unholy zeal of the restorers; but the evil was too deep-seated to be wholly remedied by it, for many things have been done in churches since 1855 that cannot be defended. Some progress, however, has been made; and all archæologists are united in deploring the mischief that has been done in the past, and deprecating any attempt to do the like in the few churches that still remain unrestored. The restorers now announce their designs with bated breath, and humbly whisper that it is only repair that they are engaged in, not restoration.

No one thinks, as the restoring architects used at one time openly to declare, that it is for them to clear away everything that has been done in a church since some particular date, and to re-create that which they fancy was the church at the date in question. Though all are agreed, however, that this ought not to be, it is still done sometimes. The Society for the Protection of Ancient Buildings has prevented much mischief, but there are still cases in which it cannot interfere, or in which its interference has not the desired result.

That Society recently took the opportunity of urging its views upon the Archbishops of Canterbury and York. The reception which their Graces gave to the deputation was cordial. Since then a report has been issued of a committee whom they had called in to advise them. That report was very much to the effect that the present system of granting faculties by the Chancellors of Dioceses was the best that can be devised. We do not think so. We think, in fact, that the method of issuing Faculties is a weak point in the present system.

Another weak point is the extent to which the legal requirement that nothing should be done to an ecclesiastical building without a faculty is neglected. We think also that no faculty should be granted until the Chancellor has been satisfied by independent expert advice that it is not open to objection on archæological grounds.

The satisfactory result of all this discussion is the development of public opinion in favour of the preservation of ancient monuments, both ecclesiastical and civil. When one looks back to the years during which Lord Avebury (then Sir John Lubbock) had to fight for his Ancient Monuments Bill against the opposition of property owners and the indifference of the public, and the many concessions he had to make before he could get any Bill passed at all, we cannot but rejoice at the progress which is indicated by the present condition of things.

General Pitt-Rivers, the first Inspector of Ancient Monuments, with all his consuming zeal and masterly ability, found himself hampered by the limitations of the Act, and could do but little. After his death several years of inaction supervened. Now we have a Department of the Office of Works established, with Mr. Peers, the Secretary of the Society of Antiquaries, at its head as Chief Inspector, and other inspectors and a competent staff to assist him, and the protection of ancient monuments is their daily work as a recognised branch of the activities of the State.

What I venture to assert is that there has been for many years past not only a growing interest in objects of antiquity, but also a growing knowledge of their importance and value spread among all classes of the community. An old house is not now looked upon as a nuisance, to be swept away and its place occupied by one in more modern taste. Necessity sometimes requires the destruction of an old house, but it is always done under protest, and after every effort to save it has been exhausted.

We have only to contrast with this the depth of infamy that the enemies of our King and country have incurred by their treatment of the ancient buildings in Belgium and France that have come into their temporary possession by their lawless invasion of those countries. First, the University and Library of Louvain, of which not a single book or manuscript was saved, but absolute destruction was effected by the use of chemicals. Then the Cathedral and Cloth Hall of Ypres, magnificent not only as specimens of Gothic architecture, but as monuments of a closed page of history. Arras Cathedral, also, and worst of all, perhaps, the unique grandeur of the Cathedral of Rheims, all sacrificed to a brutal savagery that prides itself on rivalling that of the Huns.

It is true that the prime instigator of these atrocities has said that his own heart bleeds over them. I am far from accusing him of insincerity; but I wish that his emotion had gone the length of preventing them. The fact that he did not do so, and that his people rejoice in the evil that has been done, is evidence that no culture of the intellect is of much avail unless it is accompanied by reverence for the past. The Kaiser's own respect for antiquity has taken a curious form. At Saalburg, the great Roman fortress of Artaunum, he has shown himself to be the most audacious of "restorers." The Roman buildings here were of great extent, and had been carefully explored for several years. Mr. F. G. Hilton Price communicated a very clear and full account of them to the Society of Antiquaries on March 20, 1890. Since then the Kaiser has rebuilded them, with a view to give his subjects an object-lesson in Roman strategy, and to show them what a Roman fortress of the first class would have been like. The motive is indeed excellent, but the work itself would, I fear, fall under the censures pronounced by the Society of Antiquaries in 1855 on the work of the imitative restorer.

I hope that, in saying this, I am not disparaging the one good action of a misspent life.

In explorations of ancient remains, both in the manner of conducting them, and the means of recording them, there has been a marked advance during the last sixty years. It is due in the main to the example set by General Pitt-Rivers, who under his previous description as Colonel Lane Fox, had acquired a high reputation for precision in observation and acuteness in reasoning out the significance of the things observed. The change of name with its quaint combination of the names of the two great rivals of a past generation—Fox and Pitt—was due to his inheriting the Rivers estates in the year 1880 under the will of his great-uncle, the second Lord Rivers. On these estates there were a considerable number of antiquities, extending over a large area which was formerly Cranborne Chase.

He organised a staff of assistants, and devoted the remainder of his life to the complete exploration of the district. The results are set forth in four stout quarto volumes, which were generously presented by the author to working archæologists. They are a model for all explorers, containing very accurate accounts of the precise position in which every object was discovered,

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its form and size, measurements and indices of the skulls and other important portions of every human skeleton, and many figures, plans, and maps.

Another important and prolonged exploration is that undertaken by the Society of Antiquaries into the Roman town of Calleva, the remains of which are situated at Silchester. This occupied the close attention of Mr. (now Sir William) St. John Hope, Mr. Mill Stephenson and others for seventeen summers, and each year the results were reported to the Society in the form of a paper in *Archæologia*. It is much to be desired that a collected volume of these results should be separately prepared and issued.

There has thus been progress both in scientific archæology and in popular archæology. The first is due mainly to the labours of individuals; the second in a large degree to the influence of associations. The visits made to places of interest by the Royal Archæological Institute, the British Archæological Association, and the County Societies, including our own, have been followed by visits from local Antiquarian Societies, University Extension classes and other bodies under expert guidance. Even picture postcards have helped to spread among the multitude some knowledge of the beauties of our old architecture.

NORMAN CASTLES IN SCOTLAND.

MR. WM. M. MACKENZIE, secretary of the Royal Commission on Ancient Monuments (Scotland), delivered a lecture to the members of the Edinburgh and South-East branch of the Historical Association of Scotland in the geography classroom of Edinburgh University on the 17th inst.

The lecturer, who took for his subject "Norman Castles in Scotland," said the private castle, that was the castle in the ordinary sense of the term, was introduced into this island by the Normans. The word first appeared in the Anglo-Saxon Chronicle in 1048 in circumstances which showed that the thing as well as the name was new. An historian of the Conquest expressly said there were very few in England at that time. What sort of structure the ordinary Norman castle was appeared on the Bayeux tapestry, from which several illustrations were shown. These with accounts from various French and English chronicles proved that its essential feature was a mound of earth, known as a dungeon, more familiarly as a mote, on which the defences of tower and wall were constructed of wood. These terms in time changed their meaning. A large enclosure on the level was also palisaded with timber, and was known as a bailey. Each division normally had an independent ditch. Illustrations were shown of still existing mounds, base-courts, and ditches in England, also a reconstruction of such a castle. Extracts from accounts of sieges in contemporary English chronicles were given to illustrate the various features, the overwhelming of the defenders with missiles, the mound climbed by attacking parties on hands and knees, finally the setting on fire of the timber structures. Reference was also made to the herisson or prickly hedge in advance of the ditch—the mediæval equivalent of barbed wire—as it figured in the description of Scottish attacks upon English border castles in a French poem of the twelfth century. In Scotland there had been confusion as to Norman castles owing to a belief that these must have been great stone keeps. Now that it was known what to look for, the mote or mote-and-bailey earthworks were found to be numerous and present over the greater part of Scotland, indicating the thoroughness of Norman penetration, and probably, too, a following of Norman example. No precise figures, however, could be given till the archæological survey was completed. So far a dozen were allotted to Wigtown, twenty-six to Kirkcudbright, and nearly as many to Dumfries, but one only to Berwickshire. Many must have disappeared either by levelling or under subsequent building. The type seemed to cease at Dunskaith, on the north side of the Cromarty Firth, where the traces of the castle of 1179 were still distinct, but there were two cases in eastern Sutherlandshire where a mote foundation for a later stone building was strongly suggested. Examples were shown on the screen of various types of mote castles in Scotland. Mr. Mackenzie said there were certain puzzling features still awaiting explanation. The wooden "peel" of the War of Independence was substantially a revival of the same sort of fortress as had been used to subjugate England at the Conquest.

THE INFLUENCE OF EGYPTIAN CIVILISATION UPON THE WORLD'S CULTURE.*

By W. J. PERRY, B.A.

IF on Fergusson's "dolmen" map for Spain, Portugal, and France ("Rude Stone Monuments") be plotted out the distribution of ancient pre-Roman and pre-Græcian mines mentioned by Professor Gowland in the Huxley Memorial Lecture, it will be found that the area occupied by the two are identical. In Northern Africa megalithic structures are found in that region comprising Tunis and Algiers which contains mineral wealth, and where ancient mine-workings are recorded; also the stone ruins and terraces of Rhodesia and the country to the south are associated with ancient mine-workings. Those parts of India which show signs of megalithic influence, as, for example, Southern India, with Ceylon, Chota Nagpur, Assam, and the sub-Himalayan States, and also Tibet, are those parts which contain much mineral wealth in the form of gold and precious stones of various kinds. Assam, Tibet, Chota Nagpur, and Southern India were gold-producing regions in ancient times; the States of Kullu, Garhwal, Nepal, Bhutan, and Sikkim, as well as Southern India and Rajputana, formerly produced much copper.

The distribution of the pearl oyster in the Indian and Pacific Oceans, as well as the Gulf of Mexico, closely defines the area of megalithic influence. The exceptions are West Australia, where pearls are found in abundance, their presence being unaccompanied by any signs of megalithic influence; and Peru, where ample signs of megalithic influence are present without pearls. But in South America the area of megalithic influence agrees well with that of metals and precious stones. The distribution of amber and metals in the Baltic region seems to agree closely with that of megalithic structures.

The pile-dwelling region of Switzerland and Upper Austria, as well as the Terra-mare settlements of Italy, are closely allied in culture, and undoubted traces of Egypto-Phœnician influence are present in the earliest settlements of these regions. The distribution of the pile-dwellings of Switzerland and Austria agrees well with that of ancient mine-workings mentioned by Professor Gowland. The Terra-mare settlements are all situated in the basin of the Po, the one region in Italy where gold was washed extensively in ancient times. But not only is a general agreement found between the distributions of megalithic influence and ancient mine-workings, but the technique of mining, smelting, and refining operations is identical in all places where the earliest remains have been found. Professor Gowland has shown that Britain, Spain, Switzerland, Egypt, and Japan, as well as other places, were once the seats of metal industry. The form of the furnaces used; the introduction of the blast over the mouth of the furnace; the process of refining whereby the metal is first roughly smelted in an open furnace and afterwards refined in crucibles; as well as the forms of the crucibles and the substance of which they were made, are the same in all places where traces of ancient smelting operations have been discovered. This last group of facts serves to strengthen the conclusion derived from the consideration of distributions; it also serves to identify the cultural influence which was at work in the early neolithic settlements of Switzerland and elsewhere with the megalithic influence.

The conclusion to which all these facts point is that the search for certain forms of material wealth led the carriers of the megalithic culture to those places where the things which they desired were to be found. The presence or absence of the desired form of wealth seems to determine the presence or absence of megalithic influence.

* A contribution to the Manchester meeting of the British Association.

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CARILLONS AND CHIMES.*

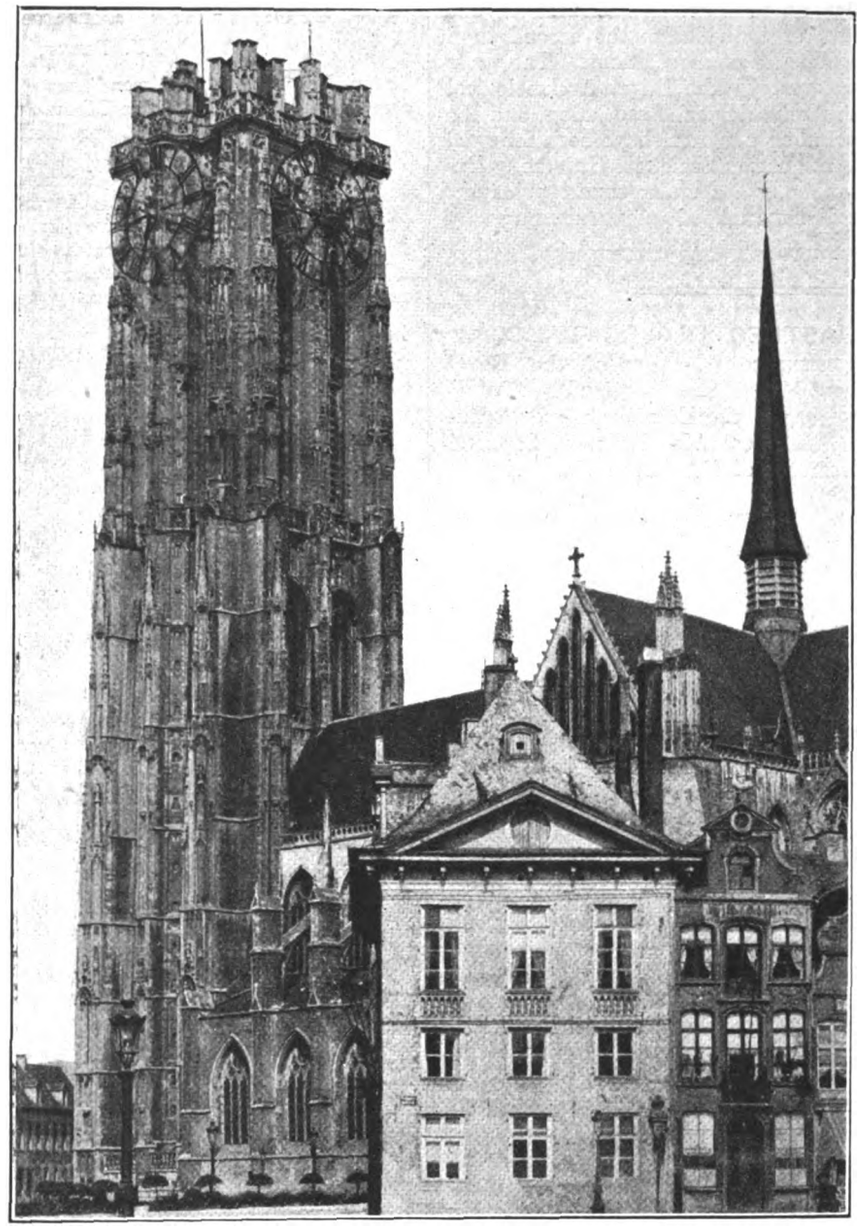
By William Wooding Starmer, F.R.A.M.

This afternoon it is my great pleasure to co-operate with my old friend, Josef Denyn, carillonneur de Malines, on a subject which to both of us is of the greatest importance and of the greatest interest.

First I will deal with the magnificent tower of Malines, which is 320 feet high and the finest of its kind in the world. Although not completed according to the original design, which provided a spire (the total height of the tower and spire being greater than any structure in Europe), I think it will be readily admitted that the tower, as it stands, gains very much artistically by its incompletion. It is perfectly designed for the good disposition of the carillon, and the nature of the surrounding country greatly helps the effect of the bell music and enables the bells to be heard over an extensive area. The height of the bells in the tower, too, is an important factor—the lowest being quite 200 feet from the ground. Then there are no obstructions to prevent the sound from travelling to the furthest possible limit in any direction. In passing, it may be stated that a carillon should never be less than 100 feet high. Of course, there are many considerations which might modify such requirements, but I doubt whether, under any circumstances, a good result could be otherwise obtained. There must be no immediate reflection of sound about the tower, and there must be no hindrance whatever to the sound travelling in all directions equally well.

The beautiful effects obtained by M. Denyn from his wonderful instrument are made possible by the excellence of the bells, the good suspension, and the satisfactory height at which they are placed.

Next the bells may be dealt with. There are forty-five—the reputed weight of the largest being 8¾ tons, while the reputed weight of the whole of the bells is 33½ tons. The oldest bell is dated 1480, twenty-six being cast by the famous Pierre Hemony in 1674. The compass is four octaves, less one note. Many of the bells are of great antiquarian interest, and the ornamentation in some instances is very fine.



THE BELL-TOWER OF MALINES.

The uses of bells in this country and the special requirements of bells when made and hung for the purpose of change-ringing, have caused variations in shape and thickness which have proved to be unfavourable to the bell, when considered as a musical instrument.

Many of our bells are poor in tone and inaccurate

* A Paper read before the Royal Society of Arts on December 15.

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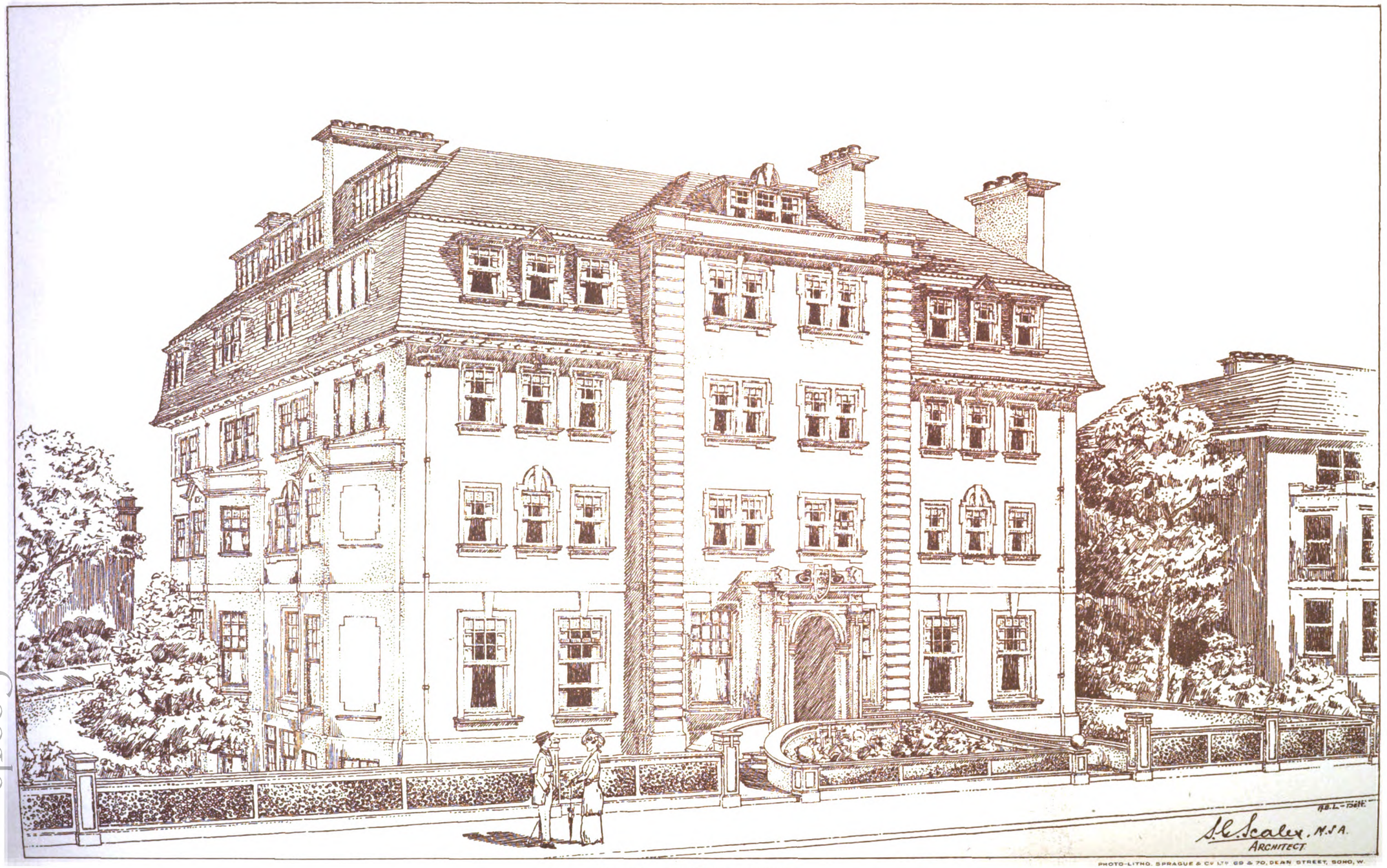


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HOTEL AT EASTBOURNE.

Mr. S. E. SCALES, M.S.A., Architect.

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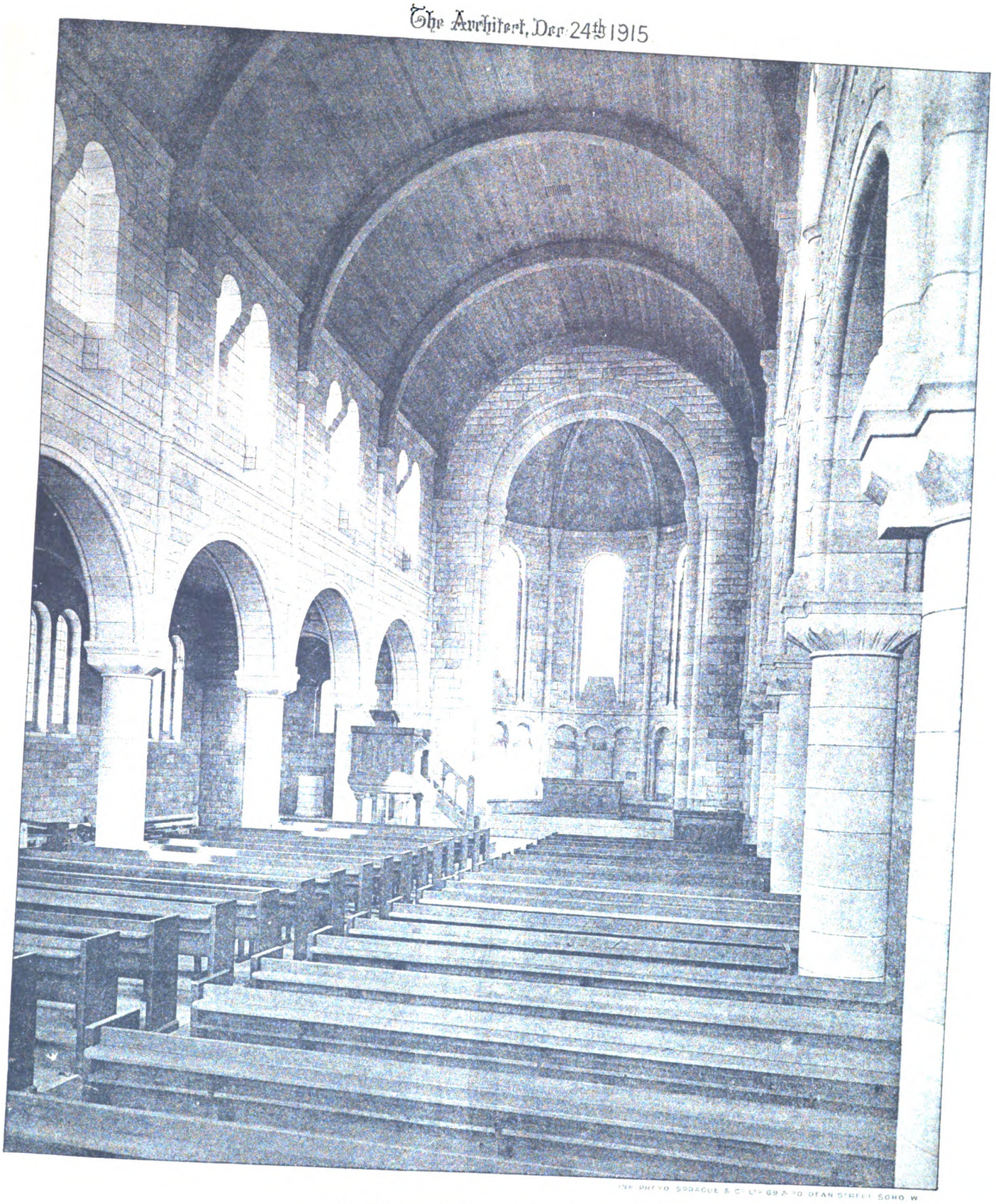


MERRYLEA CHURCH GLASGOW

MR. P. MACGREGOR CHALMERS, F.S.A. Scot., Architect

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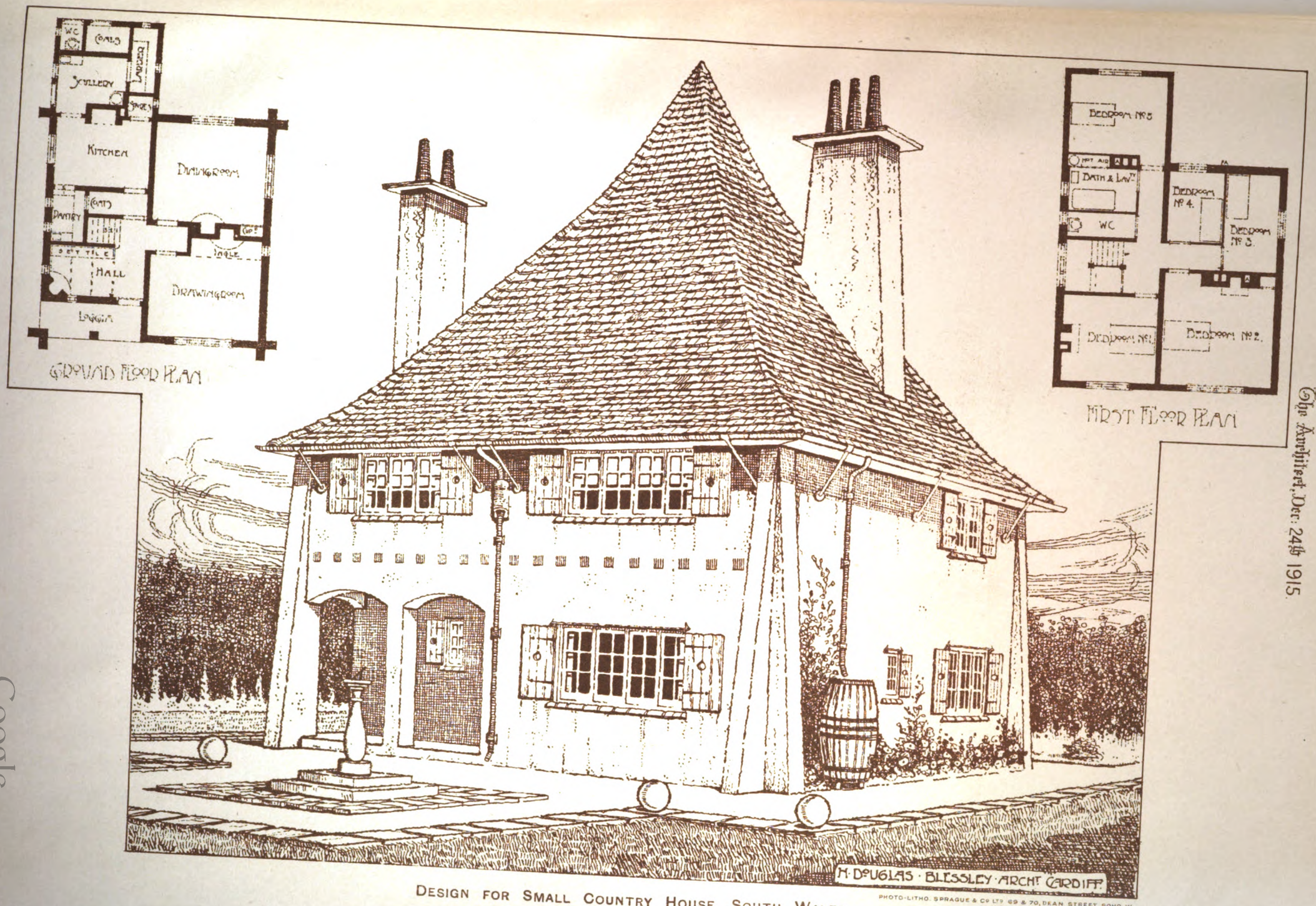
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DESIGN FOR SMALL COUNTRY HOUSE, SOUTH WALES,

Mr. H. DOUGLAS BLESSLEY, Licentiate, R.I.B.A., Architect.

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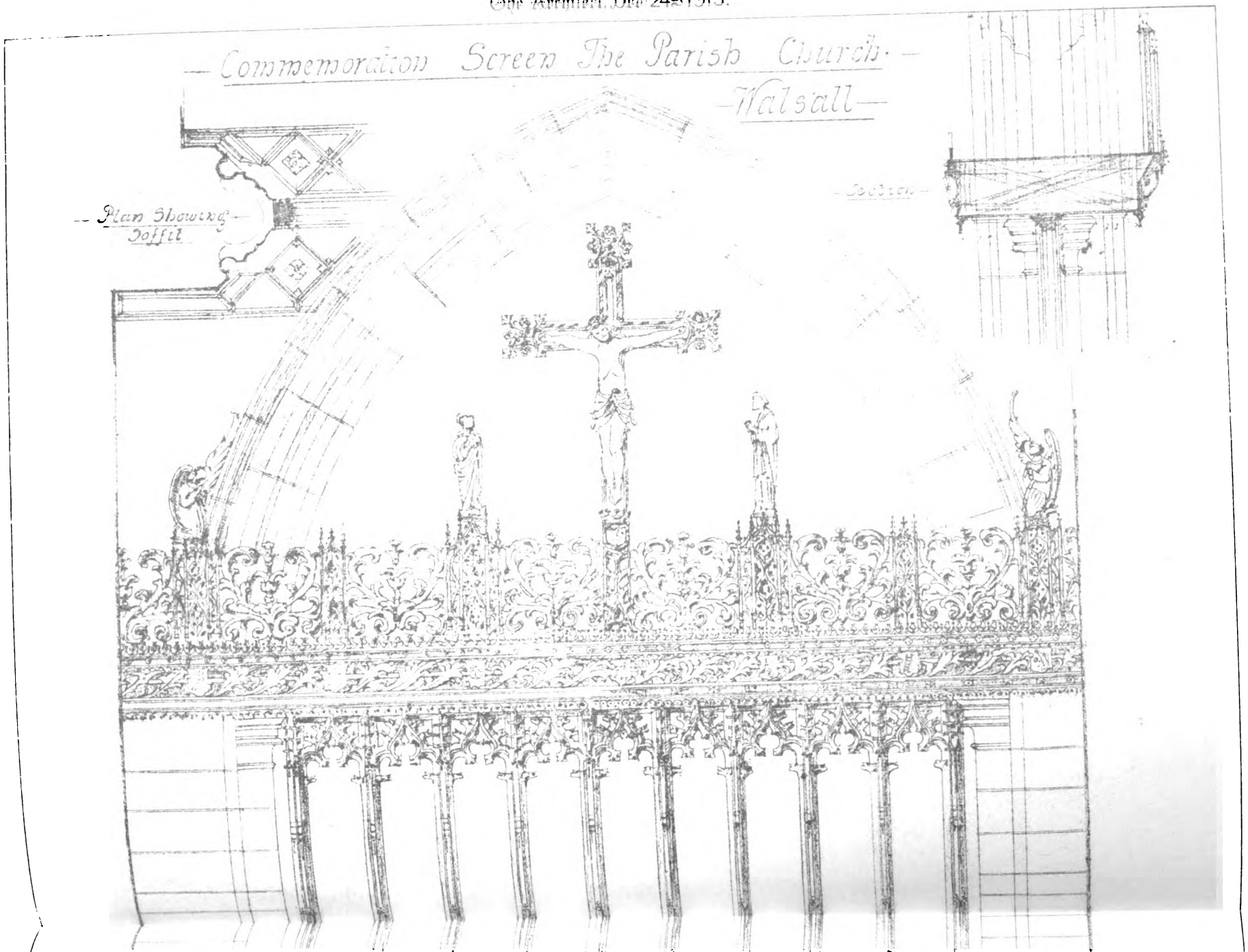
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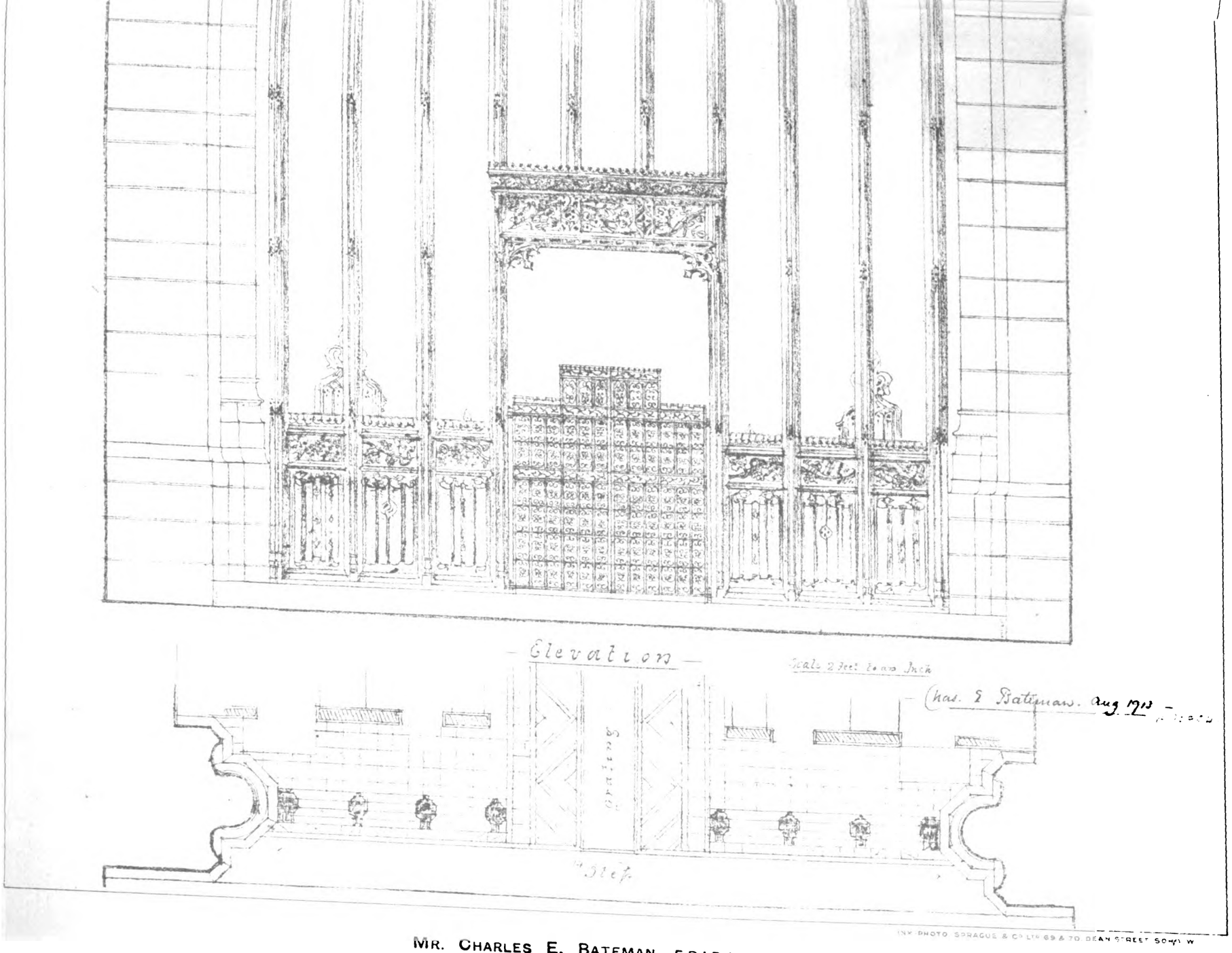
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Commemoration Screen The Parish Church Walsall



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MR. CHARLES E. BATEMAN, F.R.I.B.A., Architect.

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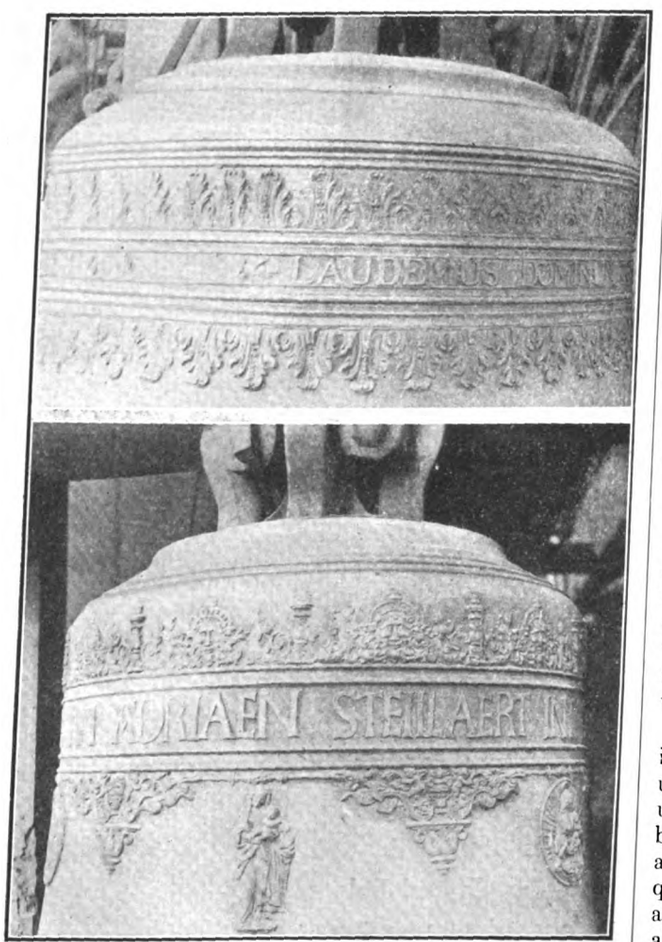
as to tune. Change-ringing is responsible for the alteration of shape—the shortening of the body—so that the series of harmonic tones has been completely upset, to the detriment of both tone and tune.

In times gone by, instead of improving the method of bell-hanging and the proper adjustment of the balance of the bell, our forefathers indiscriminately treated the bell itself and altered it in such a way as to impair its symmetry, in order that greater ease in ringing might be attained. Now, however, this problem presents no difficulties which cannot be overcome.

A consideration of the greatest importance is the difference in the construction scale in making bells for carillon use and for change-ringing. The following table will show where these differences occur:—

	For Carillons.			For Change-Ringing.	
	Cwts.	Qrs.		Cwts.	Qrs.
1	1	2	G	6	0
2	2	0	F	6	1
3	2	2	E	6	2
4	3	2	D	7	1
5	5	0	C	8	0
6	6	0	B	9	0
7	8	2	A	11	0
8	11	3	G	13	0
9	16	0	F	17	0
10	20	2	E	20	2
11	28	0	D	28	0
12	40	0	C	40	0
			(Middle C)		

The reason of the heavier weights in the smaller bells of the change-ringing scale is to prevent them being swamped by the larger ones, and, for the purpose, increased thickness is an absolute necessity. This upsets the harmonic tones more or less, and although the most important ones can be satisfactorily dealt with, at times no tuning can completely rectify the subordinates.



BELL ORNAMENT AT MALINES.

Then, of course, the difference between the methods employed in sounding the bell has to be taken into account. In the carillon the clapper strikes the bell (hung "dead" or "fixed") from a very short distance; consequently no great volume of tone is produced. In change-ringing the bell completes a circle for each blow of the clapper, which thus hits the bell with great force.

Taking these things into consideration it is difficult to make any true comparison between the use of English bells cast on a different scale and operated upon in an entirely different manner, and Continental bells made for *carillon* use, automatic or otherwise.

There is not much to say with reference to bell sounds produced by a mathematical formula in which musical considerations have hitherto played only a small part, although in recent years much attention has been given by composers of peals to the elimination—as far as possible—of changes containing unmusical cadences. It is not possible, however, to get rid of the unsatisfactory musical effect of the finals of some changes.

Far be it that change-ringing should in any way be discouraged, but music played from the clavier raises the bell to a much higher plane and makes the musical expression almost as great in its possibilities as in pianoforte playing. It is difficult to realise how such effects can be obtained by means of a mechanism that is of comparatively rude construction. There is much room for improvement in the action-work connecting the clavier with the bells, but there is not the slightest difficulty in accomplishing this.

It is probable that in the near future the action-work will be pneumatic, electric, or both—ensuring such control of expression that the player can use a keyboard identical with that of the pianoforte, thus avoiding the great physical exertion which is now often necessary. With such an action the finger will do what is now done by the hand, and the playing of the pedal will be no more laborious than is the case with the modern organ.

The clavier is arranged on the same principle as the manual of an organ. The keys are made of oak. They are round, being about $\frac{3}{4}$ inch in diameter. There are two rows of them, the upper representing the black notes of the ordinary keyboard, projecting $3\frac{1}{2}$ inch, the lower, corresponding to the white ones and projecting $6\frac{1}{2}$ inch. The pedals are one octave or more in compass. The pedal board is a necessity, because the larger bells require much more force to bring out their tone. The clappers are consequently much heavier, and demand a considerable expenditure of energy to move them. The pedal clavier also greatly increases the resources of the instrument, and permits the music to be played in three or more parts.

The keys are struck with the closed hand, the little finger being protected with a leather covering to prevent injury when playing. As the leverage of the key has to move the weight of the clapper, which in large bells is very considerable, and as the amount of tone produced depends entirely upon the amount of force with which the key is struck, it will be easily understood that carillon playing requires a great deal of strength as well as celerity and skill.

The connection between the key and the bell clapper is exactly the same in principle as the tracker action used in organs, iron levers, squares and wires being used in the place of the wooden materials of organ building. On the clappers of the smaller bells springs are fixed to bring them back into their original position quickly after striking. In the larger bells the clappers are too heavy for this arrangement. They have a simple appliance consisting of a chain which is attached to the "flight" of the clapper and passed over a pulley. A weight is fixed to the other end of the chain sufficiently heavy to bring the clapper within a very short distance of the sound-bow of the bell, so that the key has only to upset the balance between the weight and the clapper.

The mechanism connected with each key is fitted with an adjustable screw-plate, or other device, by which the tension can be regulated to a very great nicety and the touch adapted to the requirements of the player.

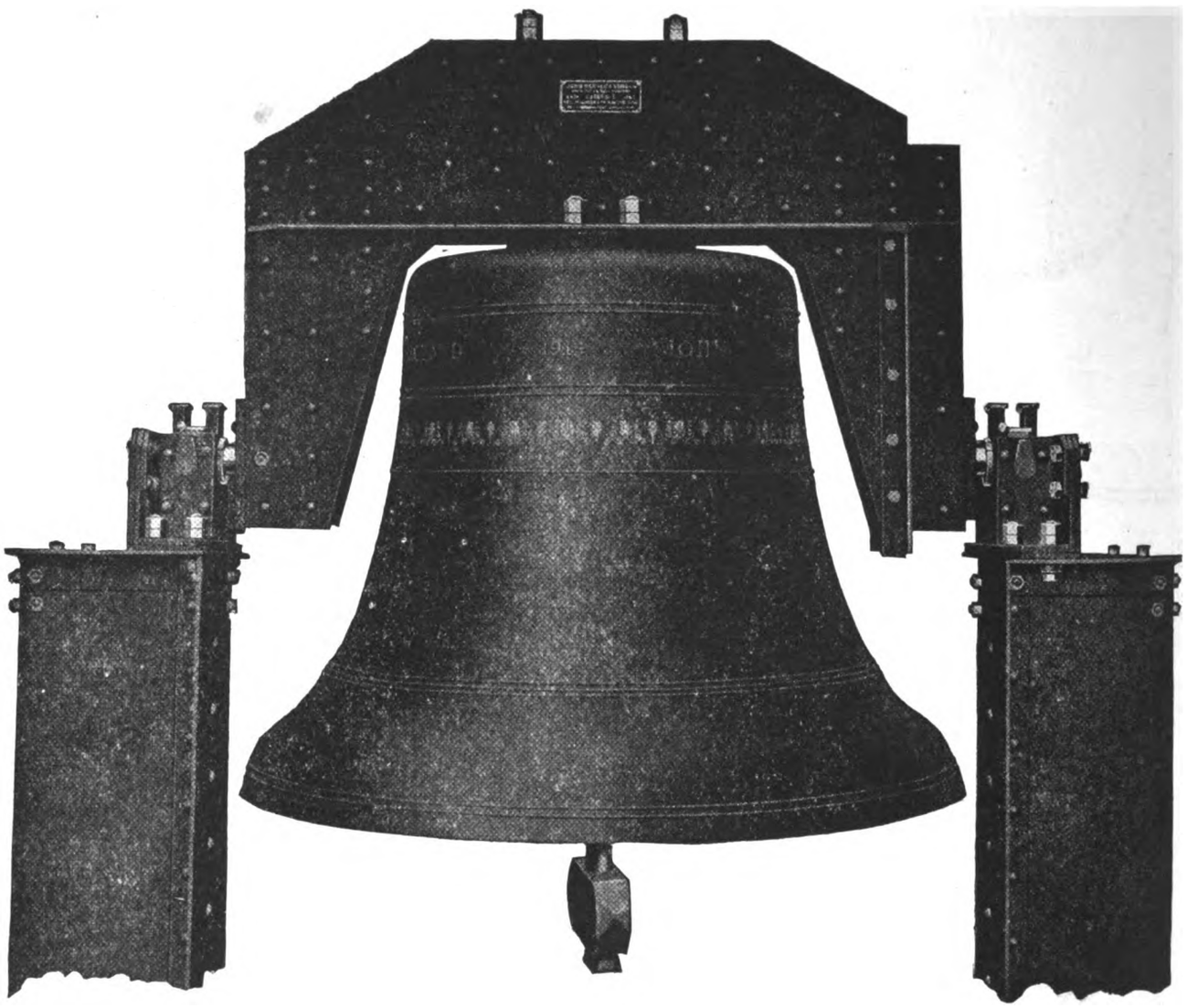
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Tenor Bell of the Carillon of 21 Bells,

Diameter 70 in. Note A. Weight 3 tons, 1 qr., 9 lbs.



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The above is the largest bell of the Carillon of 21 Bells which has just been erected at the new Timothy Eaton Memorial Church, Toronto, Canada. The total weight of the 21 Bells is 13 tons 5 cwts. 2 qrs., and the cost, inclusive of fixing, amounted to £3,500. The "WARNER" Self-aligning headstock for Carillons is fitted to all the Bells, with the exception of the Tenor Bell, which has a special Ringing Headstock and Balanced Clapper, and also the "WARNER" Self-aligning, Self-lubricating Oil Ring Bearings, Type G (Patent No. 18896/13).

An Electrical Apparatus, which enables Carillons to be operated with the greatest delicacy of touch, is now being manufactured by John Warner & Sons, Ltd.; and bells fitted in this manner have been supplied to the Royal Private Chapel of St. Mary Magdalene, at Sandringham, to the order of H.M. King George V; and also to Dunecht House, near Aberdeen, to the order of Lord and Lady Cowdray.

The historic rings of the 12 Bells of York Minster, and St. Leonard's Church, Shoreditch, have been recently completely restored by John Warner & Sons, Ltd.

The special attention of Architects is called to the new "WARNER" Vertical Cantilever Bell Frames (Patent No. 14148/14) which absolutely ensure the safety of weak towers.

The new steel "Anti-Vandal" Headstock (Patent No. 17367/14) is specially designed to do away with the prevailing vandalism of cutting off the ornamental canon heads of ancient and historic bells.

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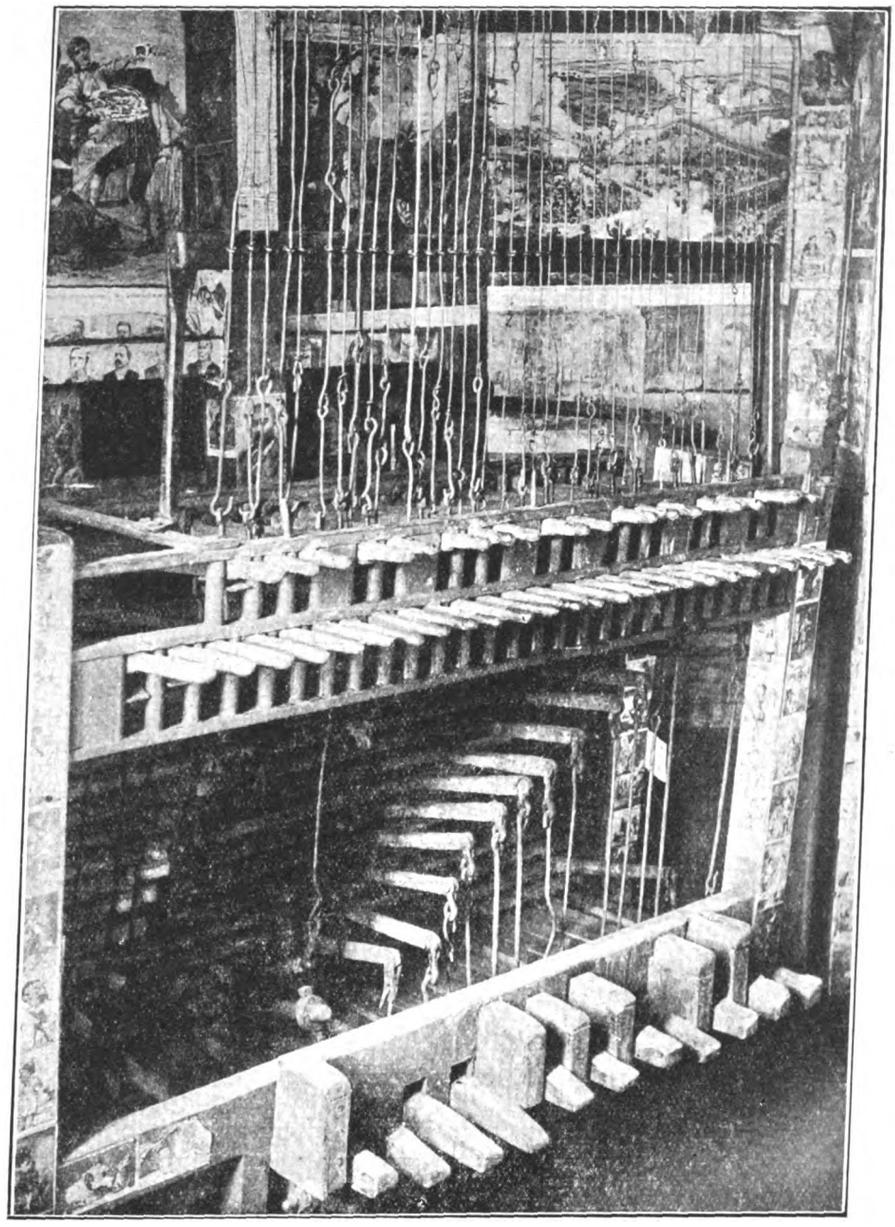
The bulk of the playing is done on the smaller bells, with only occasional use of the larger ones. The reasons why this should be so are:—

(1) The small bells are more easily manipulated;

(2) The effect of chords is much more satisfactory than on the large bells, owing to the fact that in the latter the harmonic tones are very prominent and frequently interfere with each other when sounded together in a disagreeable manner.

This is not the case with the smaller bells when used in combination, as their harmonic tones are too high in the scale of sounds to inconvenience the ear.

Concerning the chime apparatus there is much to be said. With us melody only is played, and rightly, for change-ringing. It is well to state that it is most undesirable to make bells on the ringing scale for carillon use, and it is equally undesirable to use bells made on the carillon scale for ringing purposes. The demands in both instances differ widely, and the bells cannot be made to serve two purposes satisfactorily or equally well. Until recently this has not been properly understood in England. The late Lord Grimthorpe is responsible for much of the trouble relating to thick bells. He insisted on having all bells over which he had any jurisdiction made on an abnormally thick scale. Experience has shown that on this point he was wrong, although his crusade may have prevented many bells from being made too thin.



THE CLAVIER OF MALINES CARILLON.

too, for, as a rule, our bells are much heavier than those on the Continent, which are used for two, three or four-part harmony. Heavy bells. especially when the notes are near together, would be unbearable in combination, because their harmonic tones would greatly interfere with each other. This interference would be greatly accentuated in any extended compass, because until recent years all sets of bells in this country—whether diatonic or chromatic—have been made on the ringing scale, which means that they are thicker and heavier than they should be for carillon use. Perhaps this has been unavoidable, as in several instances a specified number of bells in the scale have been hung

Our ancient chime machinery is very simple, and consists of a weight-driven barrel, sometimes as large as three feet in diameter, generally made of wood, into which pins are fixed on exactly the same principle as in the barrel of a musical box.

The pins in the chime barrel pulled down levers which lifted the hammers with which they were connected by wires, and released them so that in their descent they fell upon and struck the bell from the outside.

In passing, I might mention that in mechanical chimes the hammers always strike the bell from the outside.

Of course, in such a machine the barrel had to do all the work. It was satisfactory so long as the require-

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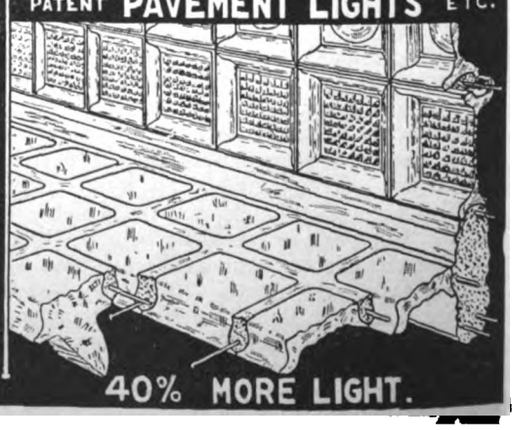
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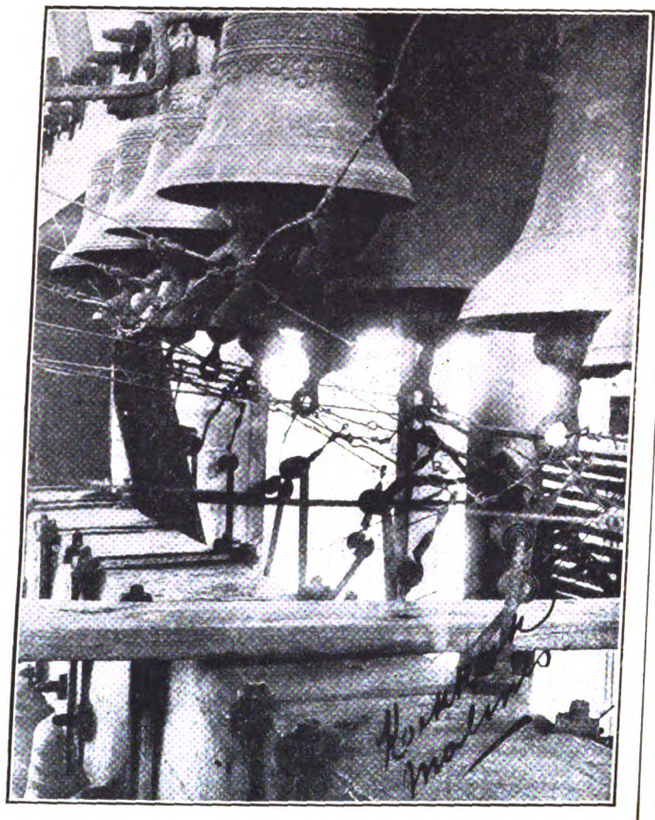


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ment was merely the playing of a regular succession of notes of equal value at a moderate speed—a simple hymn tune, or the like. But as there are very few melodies of real interest which come within these limits, particularly as regards secular tunes, more elaborate airs consisting of unequal notes, mixed long and short note values, groups of short notes in quick succession, &c., were set on the chime barrel. Such demands had the effect of obliterating everything in the shape of correct time in the rendering of the music, because the chime barrel with the same motive power had to play, perhaps, four notes in the same time as one which preceded the group of four and two which followed, *e.g.* "Rule Britannia."

As you can well understand, these unequal demands made the speed of the barrel very irregular, with the result that one bar was played at a quicker or slower time than another. This made the musical effect of many chimes very unsatisfactory, and, in not a few instances, quite grotesque. The fault was in trying to



CONNECTIONS OF CLAPPERS TO CLAVIER, MALINES.

make the mechanism do what it was incapable of, and for a time, no doubt, this tended to mar the popularity chimes had gained.

About fifty years ago improvements in chime mechanism were made by Messrs. Lund & Blockley. The general principle was good, but certain parts of the machine were too weak to bear the strain of the very heavy driving weight used.

Other improvements were made by Messrs. Gillett, of Croydon, who erected their first carillon machine at Boston parish church in 1868. The particular advantage of their machine is that it divides up the mechanical operations. A separate movement is fitted to raise the hammer-levers into action immediately after they have fallen and struck the bells. When raised into position they are prevented from falling by a spring trigger which can be released by the slightest touch. The only work the chime barrel has to do is to release the triggers, so that the demand on the barrel is reduced to a minimum.

The most recent invention in our carillon machinery has been made by Messrs. John Smith & Sons, of Derby. It differs from Messrs. Gillett's machine principally in the subdivision of the driving power. Each hammer, or set of hammers, has its own special mechanism driven by a separate weight instead of the motive power required being derived from one source, as is the case with other machines. Consequently the weights are so adjusted that the driving power is at all times adequate for the proper working of the hammers, individually and collectively. I mean that however great the demand is, it never makes the smallest difference in the efficient working of all the parts, thus securing perfect time in the playing of the tunes. This is a decided advance, and with such a mechanism almost anything can be played, although it is undesirable to set very quick tunes on the chime barrel.

At Malines, in some instances, there are as many as four hammers to each bell, so as to ensure the quick repetition of the note when required. The connections there between the chime-machine and the hammers are made by means of wires, squares, &c., just as in our own chimes. These vary from fifteen to forty feet in length. Although the connections are in appearance somewhat clumsy, they require a very nice adjustment.

The chime-barrel is made of gun-metal, with two rim cogs and a centre guiding cog. It was cast in 1733, completed in 1734, and is 5 feet 3 inches in diameter. The driving weight is 1 ton 6½ cwt., being about 4 cwt. in excess of that which is absolutely necessary for the purpose. The chain to which the weight is attached is over 90 feet long, and is wound round an oak drum fixed on the axle of the chime barrel, so that the weight force exerted is direct—*i.e.*, there is no gearing.

The chimes are set twice a year at Easter and in October—and as the barrel is a permanent part of the mechanism the chimes can only be altered by a rearrangement of the studs. This takes about four days to do. There are no interchangeable barrels such as we have in England—a disadvantage; but against this must be set the greater accuracy of the rendering of the music obtained by using a large barrel, and by providing such generous driving power.

The Malines chimes play eight times during the hour: a short flourish at each half quarter, a short piece at the quarter before and after each hour, a longer piece at the half hour, and at the hour a piece of still greater length. The hour is struck as in England, but the hour to come is announced after the half hour on a smaller bell than that used for the hour strike.

In our own country many of the disgusting exhibitions we are forced to listen to, and which in many instances set people against chimes, are the result of gross carelessness and inattention to the proper upkeep of the chime mechanism. In many instances, when chimes are put in a church and set going, there seems to be a general idea that they will work for the next century without any attention whatever. If mechanical chimes are to be successful they require very frequent attention and regulation. The chimes at Malines could never be so satisfactory if it were not for the fact that they are under the constant care of an expert specially employed to look after them, and who almost lives in the tower.

It is not so long ago that our bells and belfries were allowed to get into a very disgraceful state. Now, happily, this is utterly changed; but I regret to say that chimes, generally speaking, are grossly neglected.

The adjustment of the hammer connections and the regulation of the different parts require just as much care and attention as the action of a pianoforte, to ensure the most satisfactory results and to prevent the extravagant wear and tear of the mechanism caused by neglect.

In conclusion, I cannot do better than repeat what I have already said on many occasions when lecturing on this subject. The carillon with clavier is the finest musical instrument in existence for educating the people in and cultivating their love for folk-songs and in teaching them the great melodies of their fatherland; for the music best suited to the carillon—excepting music specially written for the instrument—includes the folk music which has successfully stood the test of time.

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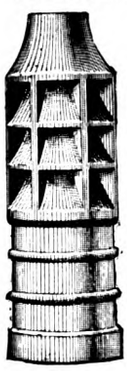
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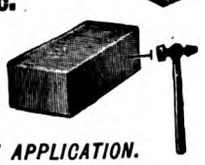
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THE ARCHITECT

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JAPANESE OAK.

WHEN, some few years ago, Japanese oak was first introduced into this country, it made its appearance in building as an unauthorised and unrecognised illicit substitute for so-called Austrian oak. The product of Hungarian forests derives its trade name from the Austrian ports on the Adriatic, Trieste and Fiume, from which it was shipped to this country. At that time the Austro-Hungarian oak had, as far as building material was concerned, practically driven out of the market the erstwhile favourites from German and Russian forests known among architects as Stettin and Riga oak, again from their ports of shipment in the Baltic. A still earlier favourite, Dutch wainscot, had also yielded in popularity to Austrian oak. The next step in the introduction of Japanese oak was its supply as "Austrian quality," an euphemism that for a short time only succeeded to a quite limited extent in combating the prejudices of architects for Austrian oak.

The qualities which enabled Japanese oak to deceive the elect, under the mask and pseudonym of Austrian, were, however, such as to ensure that the wood from the Far East would, in its properly-recognised terminological origin, be accepted as fulfilling as a building material of good repute the function previously discharged by its European forerunners in popular favour, and, even without the assistance of the effects of war, cause Japanese oak to be welcomed and used without any mask or disguise.

The northern island of Japan, formerly called Yezo but now known as Hokkaido, contains an immense storehouse of forest wealth in oak, ash, fir, cherry, birch, and two timbers peculiar to Japan, known as katsura and sen, which, properly managed, could be drawn upon for an indefinitely long period of time. These vast supplies of oak and ash, in particular, Japan does not need for her own consumption, and hence is free to supply the world, whilst the conditions of labour and supply are such that even the cost of freight over the long distance from Japan to England is not sufficient to prevent Japanese oak from competing successfully in price with European sources of supply.

In Japan there is a considerable number of varieties of oak, some of which have qualities that render them economically valuable in their native country and so hinder their export, but all the large supplies of oak to the United Kingdom are the produce of Quercus grossesserata and Quercus crispula, varieties closely akin and scarcely distinguishable botanically, save for a slight difference in the form of their fruit, the acorn. In appearance, bark, and foliage they are precisely similar; nor is there any recognisable distinction between the timber they furnish. In this respect the position is analogous to that of the oak obtained in our own country from the botanical varieties Quercus pedunculata and Quercus sessiliflora, as also in the case of the so-called Austrian oak.

A consideration of importance in the marketable value and in the popular estimation of any imported timber is that of regularity of quality in the supply. In the early days of its introduction into this country the Japanese shippers failed to recognise the importance of this consideration, but they have now, it appears, learnt by experience, and a sufficient supply of bright, clean, and uniformly good quality is obtainable in long lengths and wide widths, and there is also a plentiful supply of well-sawn square-edged boards and planks in plain and figured wood.

Japanese oak is remarkable for the slowness of its growth, as is evidenced by the extraordinary regularity and the closeness of the annual layers. Thus, in several specimens of European oak selected for comparison the average number of annual concentric layers to produce four inches of wood was found to be twenty-eight, whereas the average number in Japanese was eighty-one. This slowness of growth makes for quality and for pleasantness in working, so that the joiner likes to handle it.

There is a peculiarity of structure in Japanese oak which influences its figure. The medullary rays, which in the majority of oaks radiate in straight lines from the centre to the circumference, have a tendency in Japanese timber to radiate in curves, so that the silver grain is of rather different character to that of most European wainscot. This curved radiation of the rays is not uncommon in our own English oak, and a specimen of it is now before us in the table at which this article is being written. Japanese oak also contains a great number of very fine secondary medullary rays which assist in the development of its characteristic freedom from warp and twist, a quality which renders it particularly valuable for use in joinery.

As the forests in Japan are of great age, and the timber, as we have said, of very slow growth, there is a danger of oak for export being cut from trees that are past their prime as timber producers, so that the oak is sometimes in a slightly over-ripe condition, shown by the presence of slight brown streaks, which may indicate foxiness or even incipient decay. Japanese oak is not alone in liability to this condition of over-ripeness, which is shared by all European oaks more or less. Fortunately the defect is not liable to extend or develop in the cut timber, and may be avoided by selection. Otherwise Japanese oak appears to be cleaner, straighter, and more free from defects than the majority of oak from other sources.

Although our experience of the durability of Japanese oak in this country can hardly as yet be said to be founded on a sufficiently extended period of time, it appears that such evidence as exists promises a favourable reputation to the timber in this respect, whilst the slowness of its growth, the regularity and closeness of the annual rings, the evenness or mildness of its texture in working, all point to a presumption in favour of durability. In this matter, however, we must confess to a personal predilection in favour of our native-grown timber. Properly selected and properly seasoned, we still are fain to believe that for durability in the English climate no foreign-grown timber will prove superior to British oak.

In an article in the "Timber Trades Journal" some time ago figures were given for the exports of oak from Japan to various European countries for the years 1907-12, and it is remarkable to notice the very great and rapid increase in the importation by Belgium, France, and Germany as compared with that in the United Kingdom. In this country architects, particularly, are very conservative in their adherence to recognised materials and methods. They are disinclined to take the risk of introducing into their buildings new and untried competitors for their favour. In this course they are naturally aided and abetted by those merchants whose vested interests lie in the maintenance of established markets,

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and who conjure up all manner of bogeys to intensify the caution of those whose natural tendency is to follow the advice, "Be not the first by whom the new is tried."

We are firmly convinced that our readers need have no fears in readily and generally substituting Japanese for Austrian oak in their specifications, solely on the question of merit of the most recently-imported material and quite apart from any rightful patriotic preference for the exports of an ally over those of an enemy.

NOTES AND COMMENTS.

Whether from the desire to efface in some measure the mute accusation of their handiwork offered by the present ruined state of the cities, towns and villages of Belgium, or from a genuine desire to extend the privileges of what, in their self-conceit, they consider the highest form of "Kultur," the German occupants of the country, on the initiative of Von Bissing, have recently, we learn from a correspondent of the *Journal*, Paris, attempted to induce the Belgian artists and architects to collaborate with their own apostles of art as she is made in Germany in preparing schemes for the rehabilitation of devastated Belgium. Congresses and tours were organised by Von Bissing at Cologne and the Belgians invited to join their Hunnish rivals. But the Belgians abstained unanimously from accepting the invitation. Not realising the import of this abstention, Von Bissing tried again and this time organised a congress at Brussels. Again the Belgians held aloof, and, worse still, opened their own congress at which Belgians alone were permitted to offer competitive projects for the reconstruction of Louvain, Malines, Antwerp, Liége, Ghent and Namur. Nor was this all: the announcements of the congress warned the public, the artists, and the architects against the danger of introducing into Belgium any approach to the "Kolossal" style of the Boches. Well done, Belgium, once more! will doubtless be the sentiment of all our readers.

We commend to the sympathetic consideration of all manufacturers connected with the building trade the programme of the British Manufacturers' Association, which we give elsewhere. During the last quarter of a century the British building trade has been flooded with specialities made in Germany, many of them of little intrinsic value, but energetically pushed by the assistance of the German Government and supported with almost unlimited credit by German banks.

In our issue of April 9 last we gave an account of the recent discoveries at St. Augustine's, Canterbury. A plan taken from the "Occasional Papers" of St. Augustine's College was published in the "Times" last week, and correcting a mis-statement that the plan of Abbot Wulfric's round church is without a parallel in England before the circular Templar churches of the age of the Crusades, Mr. G. McN. Rushforth, F.S.A., points out that the main interest of the discovery is that it adds another to a list of English round or polygonal churches which covers the whole of the Anglo-Saxon period and extends up to the beginning of the Crusades. They are all of Continental and ultimately Roman origin and inspiration. It was about 680 that Wilfrid built a round church of St. Mary at Hexham. Some time between 959 and 975 the abbey church of Abingdon was rebuilt in the same form. About 1080 Robert of Lorraine, Bishop of Hereford, re-erected his cathedral, as William of Malmesbury tells us, after the pattern of the most famous building of his native land—Charlemagne's round church at Aix-la-Chapelle.

We are inclined to think that the idea put forward by Sir Ryland Adkins in a lecture on "The Art of Garden Design" given in Northampton, that the inner and outer ballium of Norman castles were the ancestors of the terrace wall and the herbaceous border belongs to the ben trovato order of legends. The bailies, we have always understood, formed the camping ground of the tenantry and peasantry, with their flocks and herds, who looked for protection in a threatened attack or raid to the lord of the castle. It is, therefore, rather a pretty flight of fancy than a historical verity to argue that in every castle worthy of the name there was a considerable space not occupied by buildings. From the raised platform generally to be found within the castle walls, provided primarily for fighting purposes, and from the open space in the castle yard itself had developed one of the leading features of garden design, the raised walk or terrace overlooking a space beyond. In the days of the castle women not only acted as housekeepers, but they were the nurses and doctors. Any knowledge of herbs and simples was theirs, and it was necessary, as there were long intervals during which no person could leave the shelter of the castle walls, to have growing inside as much as was possible for healing purposes. In the castle garden it was probably the pleasure as well as the duty of the women to grow herbs and fruit, some of the few vegetables then known to them, and probably flowers. So they got the beginning of the garden as a place for plants and pleasure, and saw the gradual development of the idea of the terrace or walk overlooking the garden. They could see how convenient it would be for the ladies as they walked inside the castle walls to have their herbs, fruit and other things ready to hand, and they probably had there the beginning of the herbaceous border, an important feature of any garden.

By the death of Mr. Arthur Hughes there has passed away one of those artists not quite in the first rank as regards most of their work, yet having the happy fortune to produce one of the characteristic masterpieces of the school to which they belong. It was in 1856, the year of Millais's "Autumn Leaves," that Hughes's masterpiece, "April Love"—a picture of a young girl whose lover's quarrel has just ended—was shown in the Academy. Typically Pre-Raphaelite in technique and in its pure-hearted romantic feeling, the picture attracted attention at once by its beauty. Ruskin praised it as "exquisite in every way; lovely in colour, most subtle in the quivering expression of the lips and the sweetness of the tender face, shaken like a leaf by winds upon its dew, and hesitating back into peace."

The necessity in our vast and bewildering storehouses of art and antiquity known as the national museums for the living voice of a personal guide, has led the keepers of the Victoria and Albert Museum to the admirable idea of a children's room, where suitably selected objects form the text from which are given illustrated lessons in art and history.

The exhibits in the children's room have been chosen with a view to interesting both boys and girls. For boys there are various objects dealing with, or connected with, war and fighting—for instance, rubbings of mediæval brasses showing the armour of the period, casts of the models of Cromwellian soldiers in Cromwell House, Highgate, and objects illustrating the Napoleonic wars, including iron jewellery worn by the ladies of Prussia to replace the gold they had contributed to war funds, and boxes made by French prisoners in England. For girls there are models of costumes of various periods and nationalities, and three dolls' houses, including an English one of the eighteenth century and one of the late nineteenth century, very completely furnished. There are also a set of Japanese dolls used in connection with the Girls' Festival in Japan, lent by Princess Mary, and, in the adjoining gallery, a similar set used at the Boys' Festival.

The antiquated verbiage and the cast-iron adherence to precedent to which conveyancing solicitors adhere in

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the drafting of repairing leases take no heed of modern improvements in the quality of painters' materials. It is still assumed that the interior of houses requires repainting once in every seven years, the exterior once in every three, or sometimes four, years, whereas the truth is that the work would be better without the slipshod renewal to which such covenants tend, provided that when done it were well done.

The Public Works Committee of the City Council of Birmingham, considering a report from their Surveyor, has resolved that all main arterial roads in the future should have a minimum width of 108 ft., and that all existing roads of that description, whenever reconstructed, should be enlarged to that width. Secondary roads are those thoroughfares which link up the arterial roads. These, the Committee determined, should have a minimum width of 65 ft.

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OBJECTS OF THE ASSOCIATION.

1. That it shall be known as the "British Manufacturers' Association, 1915."

2. That it shall be conducted on purely business lines in the interests of the manufacturers of the Empire, and shall have no connection with any political institution or party.

3. The Association shall be formed exclusively of British manufacturers.

4. Prior to the war, chronic unemployment and low wages in Great Britain were principally owing to foreign competition. Our aim is to protect such wages and employment in future.

5. To endeavour to establish Free Trade within the Empire.

6. To secure the appointment of a Minister of Commerce, and to insist that such Minister shall be a business man.

7. To secure the appointment of a staff of enterprising business men selected from various trades to co-operate with the department of such Minister of Commerce.

8. As high wages and free imports cannot go together, to promote such measures as may be necessary to protect the wages and interests of all our industrial workers.

9. To cause among other duties of the elected Minister of Commerce his earnest consideration of the requirements of each individual trade as to raw materials, &c., and the desirability of adopting a uniform system of coinage, weights and measures, &c.; in the interests of trade within the Empire, also prevent unfair competition.

10. It is essential that the industries of the Empire be properly looked after and encouraged, so that when those now fighting for us return they will not find their livelihood has been taken from them.

11. To come to an agreement with our Overseas Dominions to prohibit the importation of all enemy goods for at *least* twelve months after the conclusion of peace.

12. Our national interests demand that British industries should be freed from the shackles of party politics.

13. The British Manufacturers' Association stands for reviving and protecting the Empire's trade, thus ensuring good wages with full employment for Capital and Labour.

14. That a minimum subscription of one guinea constitutes membership, but it is hoped that larger financial support will be forthcoming from those who have the interests of the Association at heart. Donations will be welcomed from any supporters, even if ineligible for membership.

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ILLUSTRATIONS.

HOUSE AT FOREST ROW, SUSSEX.

THIS house was built from designs by Mr. W. Curtis Green, F.R.I.B.A., by Messrs. Perry & Co. The plans explain themselves; the materials used were as far as possible obtained locally.

HOSPITAL FOR DISEASES OF THE SKIN, BLACKFRIARS. CHURCH OF THE GOOD SHEPHERD, EALING.

THE drawings of these buildings, designed by Mr. William A. Pite, F.R.I.B.A., from which our illustrations are taken, were exhibited in the Architectural Room of the Royal Academy this year.

HOUSE AT GOLD HILL, CHALFONT ST. PETER.

THIS house is a good example of the small modern suburban residence which has been erected from the design of Mr. Frank Peck, F.R.I.B.A., sufficiently long for the added charms of foliage intended by the architect to make themselves evident.

THE Govan School Board last week adopted plans for a new secondary school which is to be erected in the Hillhead district of Glasgow. The successful architect was Mr. Matthew Adam, of Glasgow.

THE "London Gazette" of December 28 contains the regulations with respect to the construction of buildings wholly or partly of reinforced concrete and to the use and composition of reinforced concrete in their construction, which were made by the London County Council on July 6, and confirmed on July 13. The Local Government Board has directed that they shall come into operation on January 1.

A MEMORIAL tower is to be erected at Mount St. Mary's Roman Catholic Church at Richmond Hill, East Leeds. A tower formed part of the original plans of the church, but for want of funds this portion of the scheme has been left in abeyance. The tower when completed will, owing to the elevated position of the church, form one of the most conspicuous landmarks in the city.

THE Society for the Protection of Ancient Buildings took up the question of the disfigurement of the ancient wooden bridge at Tilford by the Wey Valley Water Company's pipe. The Society has received an assurance from the Wey Valley Water Company to the effect that the disfigurement of the bridge will only be of temporary duration, as it is their intention, as was hoped, to take their pipe under the river.

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THE WAR AND ARCHITECTURE.*

By Mr. H. G. Leask, M.R.I.A.I.

It is the first duty of a President, a pleasant one, and a proper courtesy on his part, to preface his inaugural address by returning thanks for his election. You have done me this undeserved honour, and I am duly and heartily grateful for the kind intent and deed, though full of qualms as to my fitness for the chair. Hitherto I have been but an inarticulate member of this body, but, for my own good doubtless, you have placed me in a position which requires a certain amount of eloquence to uphold its dignity, which eloquence, I trust, will appear when it is wanted, but do not be surprised, I pray you, if after this outburst of eloquence my words are few and halting. "Silence is golden and speech is silvern," the old saying has it, but I needs must, at your command, increase the output of the latter, hoping only you will bear patiently with the change.

In this year, of all years, when unparalleled international conflict and strife is shaking the world to its very depths, and moulding our destinies we know not how, such a thing as an inaugural address seems an ineptitude, belonging as it does to happier times. However, it is a link in the chain of our Association's life and derives its sole importance from that fact. That life, I am glad to say, is full of vigour and promise. The ship is sound and rides upon an even keel, thanks to skilful pilotage in the past, and the temporary navigating officer is not called upon to place it upon another tack, but just to keep a straight and steady course. To expand the metaphor, it is obvious that the sea is likely to be a troubled one, and calling for careful navigation and for confidence and loyalty on the part of the crew and passengers. That loyalty of the greater kind is not lacking in our body is evidenced by the fact that some fifteen of our members have answered the call of King and Country, their names you will find in the place of honour in the Green Book, and in the place of honour upon our walls. It is surely a very creditable muster from such a small body as ours, numbering as it does but 110 all told, and we trust and hope to welcome them back in undiminished number and victorious.

This, like all other voluntary associations, and in common with all people of this realm, must give ear to the call for economy, that dread word, but we have never been I think, extravagant in expenditure, we have always counted the cost and have always paid our way. What then can we do? Our true aims and objects are mainly the furtherance of architectural education, and the encouragement of *camaraderie* in the profession in Dublin and other parts of Ireland, and to these we will continue to apply ourselves as our means and circumstances permit. Your committee puts forward a modest programme in meetings, classes, and prizes. The excursion, some of you need not be told, was of a local and inexpensive character, but proved none the less enjoyable for that, and its success suggests that similar local trips ought to form an occasional feature of future programmes.

It has been the custom of the Presidents of the A.A.I. in the past to select some subject of great architectural interest as a basis for their inaugural addresses, or else to discourse upon the evergreen subject of our noble selves. May I confess that as a preliminary step I dipped into those classics which are embalmed in the beginning pages of our Green Books. I hoped to find some as yet untilled field, or even back garden, of architectural thought upon which to enter and cultivate for a space. Alas! my predecessors, some within the limits of one address, seemed to have staked out the whole wide field and harvested it, leaving but unconsidered trifles for my gleaning. Yet others, foiled in the same way, have, as I have already said, fallen back for subjects upon the struggles, temptations, and trials of the Association itself. Happily no internal crisis impends, so this subject may rest.

What then remains? One enormous subject certainly: architecture after the war in its professional, æsthetic, and business aspects. Frankly, that is too big for me, though I intend firstly to trouble you with some general views upon it and afterwards to do what is much easier, though very egotistical, expound, as briefly as may be, my own personal ideals in the study and practice of our common profession. It seems the only loophole for originality, though open to that charge of egotism, and perhaps the further one of triteness in the opinions expressed.

In pessimistic moments we think that the outlook for the business of architecture, in that future when peace comes to us again, is a black one. Stringent economy and heavy taxation are inevitable and certain, and it cannot be doubted that the building trades will suffer for many a day; but, after all, people and businesses must be housed. Progress may halt, but it must not stop. In some lines progress, it seems to me, must even be speeded up. Take the particular aspect of social progress which most nearly interests us as architects—the housing of the masses. It is intimately connected, in my mind, with the most terrible feature of the war, the waste of hundreds of thousands of the best male life of the nation. This seems a remote connection at first sight; but when you think of the waste, not spasmodic, but regular and daily, of child life (and particularly male child life) in great and small cities, towns, and villages throughout the land the remoteness vanishes. This waste is due to conditions of life; wages, food, clothing, housing and what not, and not the least of these is housing. Is it not obvious then that the best way to fill these gaps left by our dead and maimed heroes is to ensure to the children of the people conditions allowing their development in health and intelligence? Housing is, of course, the aspect of the case which touches us more closely, and I feel sure that we will see and take part, as architects, in many schemes of the kind in the future. It is not possible, in the stirring of national intelligence which this great upheaval has engendered, that this obvious method of cutting the losses of the manhood of the State can escape attention and energetic furtherance by both Government and people. Hand in hand with housing goes town planning in its many aspects; hygiene, educational and æsthetic, and here, too, the architect will have his place and work.

The practice of national and individual economy is, in the end, beneficial in its effect, tending to the stoppage of waste in public and private undertakings, and the freeing of money for objects of genuine use and utility. We shall probably see less in practice (and in the building papers) of elaborate and costly country and town mansions, but I think we will certainly see more (in both spheres) of a wider and more equitably dispersed activity in the form of the provision of modest homes, equipped with all the labour-saving appliances that can be contrived to economise energy and expense.

That post-war conditions will have their effect upon the style of architecture seems very probable. Architecture, in the past, has re-acted to national prosperity or calamity, and despite modern conditions, and the comparatively rapid fluctuations of architectural fashion, it is hardly possible that it will remain uninfluenced now. That the necessary practice of economy should have a sobering and restrained effect upon style is to be expected and indeed hoped: in that economy in construction, faced by a screen of cheap and meretricious external display, is the manifestation of our noble art to be avoided like the plague. That last word suggests an historical parallel upon which to found a theory. In 1349 the Black Death, a bubonic plague of peculiar virulence, raged in England, and wiped out something between one third and one half of the then small population of five millions or so. It was the greatest catastrophe that ever visited the nation, and it came at a time when the national style of architecture was in its most advanced, and indeed,

* **A Presidential address delivered before the Architectural Association of Ireland.**

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exuberant stage. Stone carving had reached the zenith of naturalistic treatment, the sculptors simply playing with the material and letting their fancies run riot. That it was a period of decadence in art is claimed by some, but its technical perfection and great beauty must be admitted. The time was also one of considerable and growing material prosperity. Then the terrible visitation came and after it a weary period of civil strife—the Wars of the Roses. Building stopped, however, but it was building in a different style. The style we know as Perpendicular was originated with the monks of Gloucester in the very year of the plague, and became for nearly three centuries the national style of the country. In its early manifestations at least the distinctive feature of the Perpendicular is economy in material and simplicity and directness in construction, all to be found in the earliest example, the beautiful cloisters at Gloucester. It is a mistake to assume, as we generally do, that the perpendicular line of the mullions, such a feature of the style, is the only or even the principal difference between it and its predecessor. The real difference lies in its economic and fundamentally simple character, and the rigidity of its aspect is the natural expression of these. Nowhere in the history of the growth and development of the Gothic style is there such a distinct step, such a line of cleavage, as here; all the previous changes had been gradual and smooth. The parallel with present conditions may not be complete, but it suggests that post-war conditions may have a somewhat similar effect upon style, and if the necessity for economy makes us design upon simple restrained lines, relying for effect upon the proper use of the bedrock principles of good proportion, it will be all to the good.

Let us trust that we will no more scatter swags, wreaths, cartouches, and unnecessary wens, sculpturesque infants and females galore on every vacant piece of wall space or projecting angle, but rather concentrate such enrichment of the best quality we can afford in the proper and most important position.

You will pardon me, I am sure, if I now leave the greater questions and plunge into the more personal ones foreshadowed at the beginning.

Every man has his ideals, be they glorious or base, or occupying an intermediate position of indefinite status. Some are inherited, some supplied by education, but most by that widest education of all, contact with our fellows. Mine, the architectural ones at any rate, are of the latter order, so if any of my good friends hear me enunciate some pet dogma of theirs I hope they will not accuse me of plagiarism, but rather take the credit to themselves of another conversion of the faith that is in them. One ideal in matters constructional which overshadows all the rest is an inherited one. It is to be simple and direct in all construction, ever searching for the most commonsense and workmanlike method of attaining the desired end and eliminating all clumsy subterfuges. Like all ideals, it is hard to attain, and in the effort much paper is spoiled, but every victory leads to fresh and progressively easier conquests. And here let me say a word in favour of the cataloguing or standardisation of those methods of ordinary construction which we find best suited to our needs. Take such as thing as the section of the mullion, head sill, or transom of a casement window. Is it not a usual thing to see in building work the same old section from the construction handbook or specification book perpetuated in building after building in spite of its oft proved inefficiency or unsuitability? Would it not be much better to experiment in something new and observe its behaviour under adverse conditions; get the builder's or joiner's opinion of the labour and cost of getting it out; change it in detail if necessary, and file away a good drawing of it for reference or further revision should the experience of the future demand it? How much easier it will be to turn to it upon its file, than to rummage through the accumulated drawings, may be of years, every time you want a similar example. Such a system might, and I think should, be applied to all ordinary details of construction, and would save much time, trouble, and probably many failures in the small practical matters of building. Our work is getting so complex, the associated trades to building are becoming so numerous, and so insistent in their calls upon us, that every simplification of method must be welcome. I am not one of those who would have every architect exercise the functions of an electrical engineer, a heating specialist, a sanitation expert and what not, besides his legitimate ones. Life is too short and quickly passing for that, and even could he acquire all the necessary knowledge, it is safe to assume that his primal function, the production of good architecture, would suffer in proportion. We cannot all be Leonardo da Vincis, but we can and should acquire sufficient knowledge of these allied professions to be able to harmonise their workings in our buildings, and prevent those unsightly manifestations of warring specialists which are so common in large and small buildings to-day. You know the kind of thing I mean: the heating pipes that assault and shatter the lines of cornices and floors, the electric light conduits that wriggle anyhow over ceilings and the countless details of plumbing and other fittings which a little foresight in planning and detailing and some common sense in arrangement would simplify and harmonise. Here, again, a system of standardisation would be useful, and I would even go further and apply something of the same sort to such things as mouldings. Heaven forbid that you should imagine I am advocating a standard cut and dried style applicable to all circumstances—a sort of stock-pattern arrangement with cornices, strings, pediments, &c., all codified and ready for erection. Nothing is farther from my thoughts. Suppose for an instant that you have designed a cornice for a particular position and sent off your beautiful profile drawing in detail paper to the builder, and in due time the solid article appears in its proper position, and when you come and see it you are struck with horror and remorse, or perhaps your state is that defined by the late W. S. Gilbert as "modified rapture." It is too late to alter it then, and you determine that next time you do anything similar you will alter it in some respect of detail, minor or major. Since memory is very fallible, how much better to note it at once and file away a drawing with annotations thereon for future reference and use. In important details, of course, the making and erection of models in plaster or other material is the sanest course to pursue in the first instance, and one always to be commended, but the supplement of a register such as suggested cannot fail to be of great utility and educational value.

Talking of mouldings and models reminds me of the common and too usual way in which the former are designed, in profile only, a profile that maybe affords you great satisfaction on paper, but when translated into its final solid form in stone, plaster, or timber fails to fulfil its early promise. The model is the thing, and a little elementary knowledge of modelling would be a very useful accomplishment in every designer.

There is, however, in all this codifying and standardising a very real danger, the danger of losing sight of the real art of architecture in the striving for technical efficiency. I grant it, but I feel that if one makes a common sense use of such a system, in particular as regards constructional details, the ground is all the clearer for the æsthetic side of our work, and there is the more time to spare for it. Have you not noticed what time when you are called upon to design a small building, say a dwelling in which economy of space is the first consideration, you instinctively (particularly when using the usual scale of eight feet to an inch) cut things too fine? You compress the staircase to its smallest compass; you jamb the doorways as close to the angles of the rooms as possible; and you make the harmless but necessary bathroom, and its more useful adjunct, of the smallest dimensions possible. All these, you, or I, or we do, and the plan looks very neat and compact, but when it is translated into the solid, what scores of little things turn up, some hurtful to the eye, some impracticable or dan-

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gerous, and all bad architecture? Doubtless you can get upstairs, but what about the transit of the wardrobe for the best bedroom? What about that dining-room door which has a complete architrave to its hall elevation, but only three-quarters of an architrave inside, there being only room for half of the trim to the lining in the angle of the room? Some will say, "Oh, we settle that kind of thing on the job," but that course should not be necessary, and it is not always the best. Unless all the drawings are before you on the job at the time it is practically impossible to tell what the consequences of one little change may be. One change generally brings scores in its train; that little shift of the dining-room door may mean a curtailment of the staircase and entail re-setting out or some other bothersome thing. My point in all this flow of words is simply this: that if you had considered concrete cases of these little points and decided what minimum distance your door jambs should be from internal angles of rooms and so on, and had made standard details of them for reference when planning, you would produce both a better drawing and a better building. Perhaps I have laboured this point unduly. I will cry your pardon and pass on.

As for ideals in design, dogmatism is objectionable; the ideal of to-day is different from that of ten years back, or that still in the mist of ten years ahead. Nevertheless, one basic principle underlies all good work; the perfect co-relation between plan and elevation. If the latter is but an ornamental screen, inexpressive of the divisions and compartments of the plan which it clothes, I make bold to re-enunciate the platitude that it is bad architecture. But neither is the converse treatment of necessity good. The true expression of the organism of the plan can be very bad architecture indeed when that organism is but a collection of cells disposed just as the pure utility alone of the case might demand. The bald truth of it is that architecture is a compromise between at least three competing influences; the utilitarian, the æsthetic, and the financial. Many others worse even than these can be joined to them; the taste of the client, or of the client's wife, or perchance a whole committee of clients, to name but a few. Into this turmoil steps the architect, and out of it he has to evolve architecture.

When so many factors bear upon any case, compromise is the only harmoniser; when even only the first two named, the utilitarian and the æsthetic, are present, it is still a case for compromise. The architect must ever be harmonising the two parallel streams of thought, ever trying to envisage in the solid the creature of his brain. When planning the ground floor he should have, in his mind's eye, the first and all the other floors; yea, even the roof, that feature most important, so often left to the last to come in anyhow. And not alone of these must he think, but of mass and proportion, windows and doors, skyline and chimneys, all the external manifestations of plan and section. It is a great profession ours, gentlemen; not even that of the physician is more complicated, I think. After all we are creators and the medico is not. "When we make a mistake," to quote a past president, "it remains for all time, but the doctor's mistakes are quickly put under ground." I only wonder that architects as a rule do not go to the same place in great numbers at an early age.

Styles are many, and we all have our favourites, and are rather inclined to use the favourite of the moment without regard to its suitability for the purpose in view. That now reigning—I had nearly said raging—almost supreme, the Neo-Grec, has its points and very good points too; its monumental character and fine balance and its refined detail, but its use involves many features unsuitable, to my thinking, to our climatic conditions.

Those fine flat mouldings, for instance, perfect in Pentelic marble beneath the sky of Greece, lose their value in Irish limestone or granite under our cloudy skies; that hallmark of the style, the criss-cross window sash is woefully obstructive of light and very receptive of dirt. In the effect of the mouldings of the Neo-Grec especially there is a suggestion of decayed good looks, a flat-chestedness—if I may be so irreverent—which causes the buildings erected in the style to appear as lacking in life and vigour; at the other end of the scale, in the earlier and bolder Georgian work, there is a superabundant life, sometime amounting to coarseness, and suggestive of the over-modelled knotty muscularity of the pictures of Albrecht Dürer. Somewhere between these two extremes can we not find an ideal, based—to retain the human analogy—upon the curves of vigorous youth?

The fashions in mouldings are curious to look back upon; they might almost be symbolised by the changes in form of the beloved ogee or cyma moulding. I remember but a few years ago when that useful moulding usually had a horizontal projection of anything from four to five times its depth, and it has been amusing to watch the curve gradually rising toward the vertical and bulging or flattening till it reached its present erect and uninteresting position in the Neo-Grec. Surely this variety in fashion is absurd; is there not a proper curve, a proper general proportion for each position in which it may be placed, and is it not time we set out to find it?

The practice of the style is having, nevertheless, an effect of great educational value; teaching us something about the monumental and giving a breadth and spaciousness to our conceptions. This, I think, will be its most lasting and valuable effect.

My personal leanings are towards that style so well represented in Dublin by the great works of Gandon and his contemporaries, where the Roman manner is purified of its grossness by a more intimate knowledge of the Greek. Boldness, breadth, and simplicity, combined with refined—but not too refined—detail, are the distinctive features of Gandon's work, and the ideal is a fine and high one to encourage our students to strive towards, and to try to reach ourselves.

But where fairly symmetrical planning is impossible, as it is in many of the problems which we have to solve, a freer treatment of elevations is called for. Few things are more distressing to the trained eye than the effect produced by a balanced external treatment attached to a plan which is obviously far from balanced. The internal effects are worse naturally, but the external are frequently nearly as trying. Well, there is a great heritage of Gothic work of all periods to our hands for use or inspiration in these cases. Symmetry and Gothic seem rather antagonistic somehow, and we need have fewer qualms when designing about the effect of plan upon elevation. The necessity for balance in design, however, in its wider sense of good composition, still remains to be borne in mind.

Several of your past presidents have entered, in their inaugural addresses, pleas for the cultivation and development of the style of architecture racy of our native land, and all honour to them for it. With one notable exception, they pleaded for a typical national style in ecclesiastical architecture. I am afraid their advice came too late by forty years or so. An era of tremendous activity in church building was just drawing to an end, or at least to comparative formality. Most of this work was done in a foreign style, grand in itself, and informed by the best Continental models and carried out by able men, some of them happily still with us and deservedly honoured; but it cannot be called racy of the soil. Was it felt that the early round arched native work was unsuitable for buildings on a grand scale? If so, there still remained as models those great and simple Cistercian fanes, built in an Irish variety of what we call Transitional and early English Gothic, suitable alike in their simplicity, perfect proportion and comparative inexpensiveness to the spiritual needs and modest share of worldly wealth of the race they would be made to serve. It is a pity this period of work was overlooked at the time most opportune for its resuscitation.

Let us hope that for us a period of activity in domestic architecture is nigh, and that we with the fine heritage of Georgian work to our hands will be able and will be encouraged to evolve good work with a local flavour based

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upon it. Some of you may possibly say that the façades of Merrion Square or Harcourt Street have few features to make them desirable models for a national style. That is true, but it is not to them I would direct your attention, but rather to many small houses, scattered and unrecorded here and there throughout the country, which have a character of their own. In peregrinations, official and otherwise, through the country I have seen quite a number of houses which seemed to possess a local and native character. Belonging as they do to the eighteenth century and some to an even earlier period, the variations between them and better-known contemporary works are not great, but then the possible variations in such work are not numerous. It is mainly a matter of materials and sobriety of treatment. Plaster and whitewash, or grey stone masonry with fine wide joints; spreading eaves of more than usual projection, a well-proportioned entrance door with declicate fan and sidelights, good massive chimney stacks, all are features of a style eminently suitable to the green hills and vales of Erin. Or if you go a little further back in date for inspiration, there is the simple long house, with a great chimney stack at each end battered after the manner of the fifteenth-century Irish castle, a few specimens of which are still to be seen. There is no lack of inspiration would we but look for it.

To my younger fellow-students—if they will bear with a professional utterance, addressed to them in particular—I would say a word or two in closing—trite words maybe, but useful I trust. Sketch and measure as much good work as you can and remember that the latter is the most important. Sketches may be charming, but nine times out of ten they are of little use. Given that the building you wish to study is beautiful, your task is to find out *why*, not merely to make a pretty sketch. Sketching of the pictureque kind is a training for the hand and eye, to be sure, but architecture is something more important than draughtsmanship. Let your sketch then be an analytical one, showing clearly what you think to be the essential causes of the beauty of the work, and as many essential measurements as you can, and you will have learnt something useful.

Cultivate the habit of architectural criticism; not the destructive bilious kind that condemns without thought, but the one of analysis and careful consideration. Do not say "So and So's new shop in Grafton Street is rotten." Maybe it is; but, if so, *why?* Like everything else, it may have good points as well as bad ones. Decide for yourself what they are and why, and you will be always educating your taste, laying up do's and dont's for the future.

INFLUENCE OF TEMPERATURE ON THE STRENGTH OF CONCRETE.

ADDED to the list of bulletins* of the Engineering Experiment Station of the University of Illinois is No. 81 on the above subject, which will be not the least useful and interesting to our readers, and from which we abstract the following passages:—

Preliminary.—The general use of concrete in various kinds of construction, and at all seasons of the year, renders important a knowledge of the effect of temperature upon the strength of this material. It is of special economic importance to the contractor or the builder to be informed concerning the strength of concrete at early ages under different temperature conditions, so that he may know when to remove forms and what loads may be safely applied to the different parts of a structure.

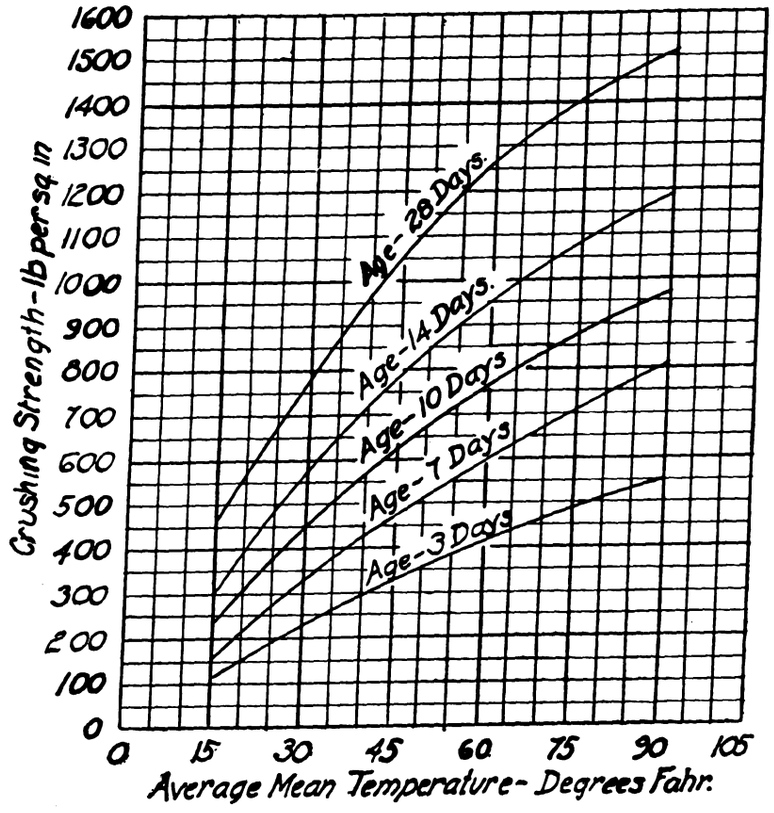


FIG. 14.—Relation of Strength to Temperature for Different Ages.

Scope of Bulletin.—It is the purpose of this bulletin to furnish some information concerning the influence of temperature on the attainment of strength in concrete.

Three groups of tests were made—viz., forty-five 6-inch by 6-inch cylinders; fifty-one 6-inch cubes; and sixty 8-inch by 16-inch cylinders.

The temperature conditions were limited by available facilities.

Concrete.—All the concrete was composed of 1 part cement, 2 parts sand, and 4 parts broken stone, by weight; corresponding to 1 part cement, 2.2 parts sand, and 3.6 parts broken stone, by volume. The materials for each specimen were weighed out separately and then mixed.

Summary.—In Group I. the test specimens were cylinders 6 inches in diameter and 6 inches high, and in

* These bulletins can be obtained from Messrs. Chapman & Hall, Ltd., 11 Henrietta Street, Covent Garden, London, W.C.

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Group II. the specimens were 6-inch cubes; and owing to the effect of the restraint of the pressing surfaces of the testing machine, the results of these tests are not further considered.

In Group III. the test specimens were cylinders 8 inches in diameter and 16 inches high, and the interpolated results for these tests are presented in Fig. 14 to show the relation between strength and temperature for the several ages. Fig. 14 may be employed to determine (1) the strength which the concrete attained at different ages under a constant temperature, (2) the age at which a particular strength was gained under the different temperatures, and (3) the strength which may be expected at different ages under different temperatures. The relative strength attained by concrete at different temperatures during hardening and at different ages may be expected to vary somewhat with differences in cements, aggregates, and consistencies; but it is thought that the values in Fig. 14 may be taken to represent the effect of the variation in the temperatures during hardening upon the strength.

compressive strength of the concrete subjected to a uniform temperature at the ages of 7, 14, and 21 days may be taken as approximately 50 per cent., 75 per cent., and 90 per cent. of the strength at twenty-eight days respectively. For lower temperatures the percentage values are less; and for higher temperatures the percentages are higher. The relation between the percentage values at the ages of 7, 14, 21, and 28 days is nearly the same for temperature conditions from 30° to 70° F. However, the values for the lower temperatures should be used with caution.

2. Concrete which is maintained at a temperature of 60° to 70° F. will, at the age of one week, have practically double the strength of the same material which is kept at a temperature of 32° to 40° F.

3. Figs. 14 and 15 may be used to determine the representative strength of concrete similar to that used in these tests for various temperature conditions and for ages up to twenty-eight days. These diagrams may be used with a fair degree of approximation to ascertain the relative strengths which concrete of ordinary practice

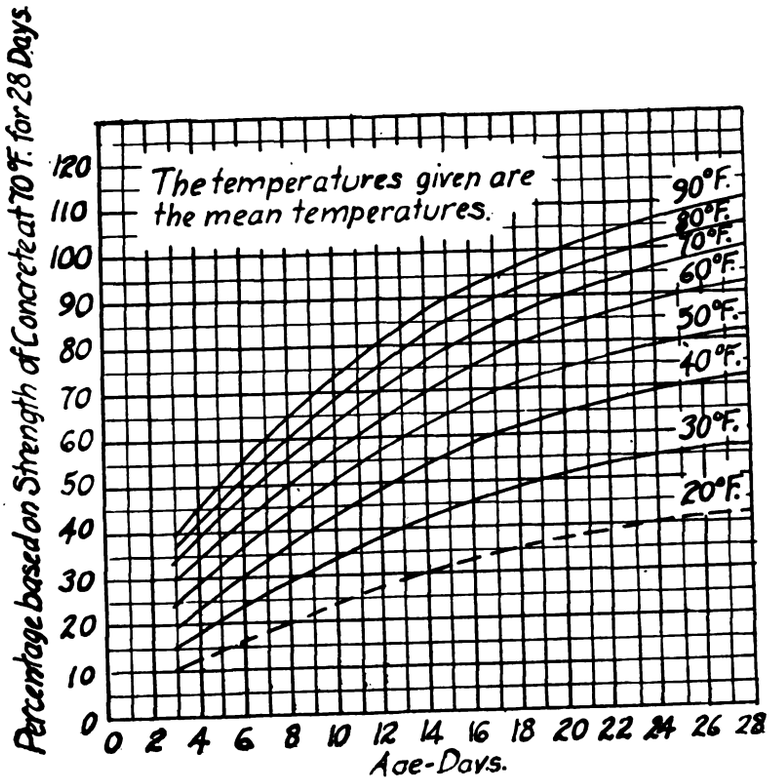


FIG. 15.—Percentages of Strength for Different Temperatures.

Fig. 15 has been drawn by taking values from the curves in Fig. 14. It shows in a general way, the relation between the strength at twenty-eight days under 70° F., and the strength attained at various ages under varying temperatures. Fig. 15 can be used in substantially the same way as Fig. 14.

The tests summarised in Figs. 14 and 15 cover a wide range of temperature conditions, the average temperature varying from 20.4° F. to 90.6° F., and are fairly consistent; and hence it is believed these values are sufficiently accurate to furnish suggestive information which may be useful in determining the time when forms may be removed and loads applied.

General Conclusions.—It is believed the following general conclusions are justifiable.

1. Under uniform temperature conditions, there was an increase of strength with age within the limits of the tests. For any temperature the rate of increase decreases with the age of the specimen; and this rate of increase is less correspondingly at the lower temperature conditions. For the specimens tested, under normal hardening temperature conditions of from 60° to 70° F., the may be expected to attain at the different temperatures. It should be noted that generally in this investigation the specimens were stored under temperatures which were nearly uniform during the whole storage period.

ARTERIAL ROADS IN GREATER LONDON.*

By W. R. DAVIDGE, F.S.I., A.M.I.C.E., A.R.I.B.A.

SOME five years ago the great road schemes of the London Traffic Branch of the Board of Trade were first put forward by Sir Herbert Jekyll and Colonel Hellard. For the last two years these proposals have occupied the attention of the six district conferences called by the Local Government Board, the Board's own representatives being successively Mr. Thomas Adams, the first President of the Town Planning Institute, and Mr. G. L. Pepler, its Hon. Secretary. Before entering upon the merits or demerits of the various proposals it is desirable that some brief outline sketch should be given of the origins and growth of the main roads out of London.

* Abstract of a Paper read before the Town Planning Institute.

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ROMAN ROADS.

The Roman roads in the neighbourhood of London, or Londinium Augusta, were apparently six in number, most of which can still be identified for a large portion of their length.

Watling Street from Dover and Rochester to London is still clearly traceable in Shooters Hill Road, and north of the river, on its way towards Chester, Manchester, and Lancaster, it appears as the Edgware Road.

There have been many learned arguments as to whether Watling Street in the City of London was ever part of this route, but the generally accepted view is that the Roman thoroughfare crossed the Thames at or near the "Horse Ferry" at Westminster and Lambeth Stangate on the south side.

Stane Street from Chichester to London Bridge is clearly traceable south-westwards from the Elephant and Castle to Kennington and Clapham Common, and on through Tooting and Morden.

Next we have the Roman road from Silchester, Dorchester, and Exeter, through Staines to Brentford, and on to Hyde Park Corner.

Northwards we have approximately the line of the Cambridge Road running straight from old London Bridge, due north from Bishopsgate through Tottenham High Cross, Waltham Cross, away to Doncaster and Lincoln.

Eastwards from beyond the City boundaries at Bishopsgate, not far from the present-day "Old Street," we still find Roman roads leading to Old Ford, Stratford, and on to Romford and Colchester.

The Roman roads were, of course, mainly marching roads, providing the shortest distance from point to point for military purposes, and it is probable that they were not greatly used for chariots or vehicular traffic. Hence there was little or no reason for avoiding hills, and the Roman road went straight on over hill and dale.

The work of cutting these marvellous straight lines must have been enormous, and still more remarkable must have been the long causeways across the marshes —splendid civil engineering.

For considerably over a thousand years these six great highways were practically the only ways out of London. There were, indeed, foot tracks and bridle paths, and no doubt many pleasant diversions from the hard high road, but essentially these Roman roads still form the backbone of our road system.

For something like 1,500 years these routes have been in constant daily use, first by the Roman legions leading their British captives, then by Saxon farmers, by knights and crusaders, by pack horse and wagon, by mail coach and post chaise. And now along these same highways the city worker travels twice a day by his tram or motor 'bus, without a thought of the generations who have used the highway before him.

Within the limits of greater London were many streams to be crossed either by bridge or by ford, and for many a long year these fords were in use.

Dartford, Crayford, Deptford, Brentford, Longford, Watford, and of course Stratford, Ilford, and Romford; while all along the river edge, Bermondsey, Battersea, "Chelsey," and Chertsey still tell of islands and marshlands.

MEDIÆVAL AND LATER ROADS.

In Queen Elizabeth's time, we see from Camden's "Britannia" that the six roads were still approximately the same, though not so true in line, with here and there a byway such as the road to Uxbridge or Portsmouth, or the Great Road from the North through Barnet, which grew up during the intercourse with Scotland.

After the Restoration in 1660, the Court moved out westwards from Whitehall to St. James's, and society went with them as far as Piccadilly and Pall Mall.

The main roads, however, for centuries remained the same in general direction, though their condition left something to be desired. Ogilby's great survey of the roads for King Charles II. was one of the first steps towards road improvement, and his excellent road books, in the forms of a surveyor's field book, are full of interest. Some few additional cross roads will be found recorded.

It has been well said that the history of the main roads is the history of the country. The living interest of each of these roads is intense. Along these, the King's highways, have come countless generations to see the great City and its wonders, to make or lose their fortunes. And along them, too, has come at times the clash of arms.

THE MAINTENANCE OF THE ROADS.

The first Roman roads were Pontes Nationales, roads made and maintained for the purposes of the Empire. When the road system became parochial the roads became parochial in every sense. It was not until the coming of the county councils that a somewhat larger view was taken, and it will not be until the nation as a whole realises the importance of the national roads that we shall have again a national road system, to which the Government will contribute, not a niggardly pittance but the whole or at any rate the large proportion of the necessary expenditure.

A hundred and fifty years ago the people who used the main roads were mostly the well-to-do. A system was accordingly devised by which those who used a road should pay for its maintenance, and so turnpike gates and tolls were introduced—the money received going to the upkeep.

THE TURNPIKE ERA.

By the beginning of the nineteenth century London's arterial roads had been added to and improved by the formation of numerous turnpike trusts. The Brighton Road, the Bath Road, the Portsmouth Road, and in addition many country roads such as Harrow Road, the Fulham Road, and Richmond Road began to assume importance. Many of London's principal arteries are due to the turnpike system.

The General Turnpike Act of 1773 fixed the width of all such thoroughfares as 60 feet. In spite of this example, we of to-day turn out miles of our 40 feet by-law roads, this latter width being an early Victorian standard set up in 1844. There does not appear to have been any general law as to building lines such as the special Act for the Euston Road, which laid down that the buildings should be set back 50 feet from the road, making 150 feet between the houses. But that excellent example was widely followed in many of the turnpike roads which formed the approaches to London a hundred years ago. In the present-day London Building Act this forecourt dimension of 50 feet is certainly mentioned, but as a maximum requirement not a minimum.

It was not till the early nineteenth century that real progress began. The improvements effected in a short period were astonishing. The founding of the Institution of Civil Engineers in 1819 synchronised with the beginning of a new era. Its leading members, Telford, Rennie, and others, began the great work of building new roads, improving old roads, building new bridges, new docks and harbours and waterways. The road surfaces were improved everywhere, thanks to MacAdam and Telford; gradients were eased; corners rounded off; diversions and bypass roads were constructed.

MAIL COACH DAYS.

The mail coaches ran to all parts of the kingdom with remarkable regularity and easily did 200 miles a day. Time tables were kept to the minute. Letters posted in London at night before eight o'clock could be delivered anywhere within 100 miles of London at breakfast time. The canal system was largely extended to deal with heavy goods traffic. Of internal improvements there were many. Practically all the Thames bridges date from this period, and new streets were cut in all directions.

Little by little the turnpike trusts were amalgamated into groups. North of the river these were eventually consolidated and taken over by the Commissioners for Metropolitan Roads, with wide powers as to the con-

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struction of new main roads, such as those now proposed by the Board of Trade. South of the Thames the turnpike trusts were amalgamated under the New Cross Turnpike Trust, a semi-public authority.

Once again the public were getting interested in the subject of London improvements, and scores of schemes were put forward.

The Decline of the Road.

Then came the "new-fangled" steam railways, and slowly but surely roads were neglected.

For something like seventy years no main roads of importance, beyond estate roads, have been constructed in Greater London. The population has grown sevenfold, but the main roads remain the same as in 1830; in fact, in many places they have been encroached upon by projecting shops, and everywhere encumbered by standing vehicles.

The Resuscitation of the Road.

With the advent of the motor-car and motor-lorry the general surfacing of the roads has immeasurably improved, but the proposals of the London Traffic Branch of the Board of Trade are the first real steps to a much-belated reform of the arterial roads in Greater London.

One might wish that Colonel Hellard had been blessed with the opportunities possessed by his predecessors in 1830, the Commissioners of Metropolitan Roads, but the mischief has already been largely done, and it is indeed a source of congratulation that he has been able to evolve such a splendid series of routes wherewith to supplement and improve the all too-inadequate channels by which road traffic enters and leaves the London area.

It is a merciful Providence, too, that after the endless conferences arranged by the Local Government Board with the representatives of local authorities and professional and other societies, that the original proposals of the Board of Trade should have emerged without serious mutilation. It is to be hoped that the next step—the construction and finance of the proposals—will be equally well received.

Present Needs.

The traffic of Greater London has for the last century or so followed certain definite channels, and it is not by any means an easy task to lay down new lines for such traffic to follow. The lines may be made, but for the traffic to use them requires first of all that the new route shall be shorter or easier than the old.

The old routes, however, are not always bad. They are frequently narrow in the old village high-streets, but, as a rule, they follow the valley lines, or lines of least resistance, and any departure from such lines, except in the way of short-cuts, rounding-off corners, and so on, is almost bound to involve either a longer distance or more difficult grades than the older route.

Here and there, it is true, a new line altogether can be mapped out, such as the proposed Western Avenue, the new Cambridge Road, or the Eastern Avenue, but the little hamlets and villages on its route seem to this generation hardly sufficient to make the road worth while.

These entirely new routes, however, are those which possess the greater hope for Greater London. The older routes are all, without exception, narrow or congested at some one or more points just outside London, such as the narrow High Street of Brentford, Croydon, Bromley, and so on; and although bypass roads may lessen this congestion, they cannot altogether remove it.

In these virgin areas, however, there is a great opportunity of giving London egress to the country. If this is to be the ideal, though, such new main roads must be designed not with the notion of developing these vacant areas and turning these, too, into wildernesses of bricks and mortar, but to give direct and speedy access to the country beyond.

The fewer the cross-roads the faster will be the speed possible, and whatever development is permitted, the road junctions with the new main artery should not be sudden entrances at right-angles, but in such a manner as to give ample warning.

The requirements of a main road are approaching more and more nearly to a railroad track, and if not entirely separate tracks, they must at any rate be protected by a strip of grass or low shrubs from the traffic coming from cross roads.

The Board of Trade Proposals.

Everyone who has investigated these routes on the ground and tried to find an alternative route must appreciate the skill and thoroughness shown in their selection, and rarely indeed can there be any difference of opinion as to the general desirability and in many cases absolute necessity of the routes suggested.

If the proposal has erred, it has been in providing the needs of the present, more than for the future, and any criticism must be directed to, if possible, extending and multiplying the admirable routes chosen by Colonel Hellard.

The sectional conferences have not yet submitted their conclusions to the main conference, but the preliminary reports already published indicate the following findings:—

That there is a general consensus of opinion in favour of the principal road proposals of the London Traffic Branch of the Board of Trade.

That the existing main roads are in hardly any case adequate for probable future traffic, and are in many instances of insufficient width for present needs.

That the by-law width of 40 feet (or some cases 50 feet) is too narrow for main roads.

That town-planning schemes would be of great assistance in the provision of better roads.

The roads considered have been classified by the conferences as (1) necessary roads; (2) very desirable roads; (3) suggested roads.

In most cases only those coming under the heading of "necessary roads" have so far been investigated. The work of the conferences has, like everything else, been injuriously affected by the war, but it was decided that the proper course was to continue the work, in order that, at the end of the war, everything should be ready to actually put the work into execution, and thus provide, when available, an outlet for the labour of large bodies of men.

The recommended roads may be summarised as a N. and S. circular road, a new main road westwards, a new main road eastwards, and a new main road northwards. Bypasses at Brentford and Croydon already arranged for. Other bypasses are proposed to avoid Romford, East Ham, Sutton, Kingston, and Kingston Hill.

Future Needs.

Such, in brief, are the proposals. Before even these can be achieved there is much to be done.

Town-planning schemes can and must reserve these routes wherever they pass through open country. The local authorities will no doubt realise the necessity for this course, but should any of them not do so, or should building be allowed to proceed across the line of route, it is evident that the whole time and thought expended in the conferences may be futile. It is therefore essential that the Local Government Board should itself accept the responsibility for seeing that these routes are reserved. The present law is, or should be, sufficient for this purpose.

With the proposed new thoroughfares in the built-up area the case is very different, and special legislation will, of course, be needed to preserve the routes from fresh building operations and to secure them for public use when needed. What form this legislation should take is an open question, but the Government owe it to our large towns that some extension should be made of the principles of the Town Planning Act into the built-up areas.

Very important, too, is the necessity for some power

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to prescribe building lines, both on existing streets and new streets, and also possibly on the lines of proposed improvements.

Some action will, under any circumstances, have to be taken at the final meeting of the Conference on Arterial Roads to secure that these matters are dealt with without delay. The present affords a unique opportunity to preserve these selected routes for new arterial roads, and it is to be hoped that the Local Government Board will at the same time see that some intelligent foresight is bestowed on the future development and extension of our arterial roads.

IRISH CATHEDRALS.*

By IAN C. HANNAH, M.A.

THE ancient cathedrals of Ireland seem hardly to have attracted the attention which is their due. In architectural splendour, doubtless, they are surpassed by the cathedrals of England, even by those of Scotland and Wales; but still they have a very distinct national character of their own, and much of the story of Ireland is written in their stones.

Variety is their prevailing note; in this they are altogether unsurpassed. St. Patrick's, Dublin, is not unworthy to rank among the mediæval cathedrals of England, being a little larger than Carlisle as it stands to-day, while Aghadoe might almost put in a claim to be the smallest church in the land. The others in size are graded all the way between. Glendalough and Ardmore are good specimens of the ancient architecture of Ireland before the Anglo-Normans came; at Derry the cathedral is in some respects one of the best examples we possess of the Gothic of Jacobean age. The work of no intermediate period is altogether undisplayed by the other cathedrals of the island; they are mostly of the thirteenth century.

So far, indeed, does diversity extend that Ireland cannot be said to possess a cathedral type as do England and France. Her mother churches are of almost every conceivable form, allowing no possibility of generalisation. Not one possesses the triple-tower plan that is the usual arrangement for important cathedrals in England. Only the two in Dublin are even adorned with triforia, vaulted clerestories, and chapels east of the choirs, though these are features that emphatically belong to the cathedral type wherever Gothic architecture is known. Cashel, whose ground plan is extraordinary, is the only one which possesses a second steeple, save that in many cases a detached round tower stands by.

Nor is the position of the cathedral a fixed thing in the cities of Ireland. On hill-tops at Kilkenny and Armagh an English close is reproduced to a certain extent; at Cashel the cathedral stands apart on its glorious rock, like the Parthenon crowning the Acropolis, with the streets spread out below. The precincts of the two cathedrals in Dublin are pressed close by the houses of the city, but no Irish bishop's church stands beside the market-place, like so many cathedrals on the Continent and so many parish churches in England. In most cases there is a very ordinary churchyard, for most of the bishops' sees, which are very numerous, are placed in villages or small country towns. In Scotland Celtic influence is strangely shown by the fact that practically every cathedral was situated in a village or a little town; hardly one of the chief places in mediæval Scotland, not even Edinburgh, Stirling, or Perth, possessed a cathedral church. In Ireland, although in other ways the influence of the Celts was still stronger, there stood a cathedral in every town of any importance, with a few exceptions, such as Galway and Drogheda.

A few of the Irish cathedrals were the churches of regular canons or monks; most of them, however, have always been served by secular chapters, and this though in some cases, as at Clonmacnoise and Kildare, they were surrounded by the dwellings of the regulars. Both in size and in beauty the cathedrals must have been fully equalled by several of the monastic churches that contained no bishops' chairs, but this was likewise the case both in Scotland and England and other parts of Europe as well. On the whole the Irish cathedrals have suffered from the excessive zeal of the restorer worse than the English ones, though perhaps hardly so badly as the French. Many of the most important have been almost entirely rebuilt, but this was a necessity from the neglect of ages past.

The ancient Celtic church, possessing so many features borrowed from the East, did not greatly emphasise the distinction between cathedrals and other places of worship either in ritual or architecture. Of the ancient Irish words for church none is used exclusively for a cathedral.

Four existing cathedrals, three roofless ruins and the fourth not used, were already in existence before the Anglo-Normans came.

The chancel of Ardmore is an excellent specimen of the Cyclopean masonry, with large shapeless blocks and widish joints that is one of the distinctive architectural features brought to Ireland from the Levant. It is of early character, and may be of any period from the seventh century to the eleventh. All the details that survive are later. In the churchyard stands the cell of St. Declan, founder of the church—a chamber of similar Cyclopean masonry, 13 feet 4 inches by 8 feet 9 inches, the walls 2 feet 5 inches thick, with antæ at either end. This tiny sanctuary may possibly date back to the days of St. Declan himself and belong to the fifth century. We have really no means of dating these ancient buildings of Ireland, except in the most general way; till recently the tendency has been to assign their erection to periods most improbably early.

Close by the old cathedral of Ardmore, on its south side, and on slightly higher ground, there rises nearly a hundred feet into the air one of the latest that still exist of the famous round towers, apparently of the twelfth century. Round towers, it may here be mentioned, were still built for years after the Anglo-Norman conquest: the Four Masters record the erection of one at Annadown as late as 1238. At Ardmore the masonry is excellent ashlar, kept in regular courses, in place of the neat rubble characteristic of the work of earlier days. The characteristic conical cap is entire, and just below are the usual four windows provided to command the view.

At Glendalough the cathedral is merely one of a considerable number of little churches (the so-called Seven Churches) whose charm is vastly heightened by the delightful scenery of the valley in which they are built. The twin lakes from which the place is named, shut out from the world by wooded hill-sides, form an ideal setting for these ancient ruins which owe quite as much to their sites as do Fountains and Rievaulx themselves.

While the churches of Glendalough, like so many English abbeys, owe much of their fascination to the unexcelled beauty of their sites, those of Clonmacnoise seem to be in surroundings not less appropriate, and certainly far more individual, amid the desolate wastes of the Irish bogs by the broad and winding Shannon, the treeless dreariness relieved only by a few old ash trees almost destitute of leaves. Here also the cathedral, with its round tower in the precincts, is one of numerous ruined chapels in a group, that of Conor alone being in use.

At Killaloe, close to where the Shannon issues from Lough Derg, we may see the ancient architecture of Ireland gradually becoming less rude and adopting Romanesque details, while still preserving the essential features of such buildings as St. Columba's house at Kells and St. Kevin's kitchen at Glendalough. In the

* **Abstract of a Paper read before the Royal Archæological Institute.**

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yard of the latter cathedral still stands a little chapel, probably the bishop's church, with double roof of stone. The inner roof is a plain tunnel vault, the outer one is of solid stonework and extremely steep.

A great advance in every way is marked by the famous chapel of Cormac on the rock of Cashel which was consecrated in 1135. Except in dimensions, indeed, it has much of the character of a real cathedral. Very considerable engineering skill is displayed in the construction, more than in contemporary structures elsewhere, despite the smallness of the scale. No church in the world of the same dimensions perhaps is more beautiful than this striking little chapel. It displays the native architecture developing in such a hopeful direction that one cannot help feeling the profoundest regret that the Conquest should so abruptly have destroyed it. If let alone the Irish might have developed a style entirely their own—not merely a national variety of mediæval Gothic, but a mode of construction as different from it on one side as Byzantine work on the other.

It is certainly strange that, while adopting so many features of their delightful detail from the East, the Irish never borrowed its most distinguishing feature, the dome, as the central object of a church. The form had been familiar for untold generations in the sepulchral chambers of their tumuli (such as New Grange), though built on the principle of the corbel instead of the arch.

The possession of cathedral status by such minute chapels as those mentioned above is characteristically Irish, a legacy from earliest days. It is almost unique in Western Europe, for even the two Icelandic cathedrals, though built of timber, were of far more ample size. In the east of Europe, however, whence Ireland's faith was brought, cathedrals are frequently of the most restricted dimensions. The church of St. Eleutherios (nearly always called the old cathedral or "metropolis") at Athens measures only about 40 feet by 25 feet.

The exceedingly interesting crypt of Christchurch, in Dublin, is the sole fragment of the structure raised in 1038 at the expense of Sigtryg Silkbeard, Danish king of the city, by Donat, its first Ostman bishop. It seems likely that the actual workmen were Irish, though the whole design, and particularly the existence of the irregular three-sided apse, marks a great departure from the Celtic past. The upper church was rebuilt by the renowned Richard Strongbow about the year 1170.

Archbishop John Comyn founded outside the Dublin city walls the collegiate church of St. Patrick, which was consecrated in 1191, and he also erected a palace for himself beside it. By his successor St. Patrick's was, in 1213, made a second cathedral; its relation to the older one is somewhat baffling. Despite its name it resembled many other great foundations on Irish soil in being very exclusively English. In 1514, by a "Compositio Realis" between the Archbishop and the Dean and Chapter, "the ancient custom of this church is confirmed and ratified that all Irishmen by blood and nation, and all who conform to them in mode of life, are shut out from being members of this cathedral." Few greater churches have experienced stranger vicissitudes.

The only Irish cathedral whose architectural history is as complicated and difficult to disentangle as are those of most of the English ones is St. Mary's at Limerick, which was founded by Domhnall O'Brien, King of Munster (*d.* 1194). Lavish restoration with a liberal use of plaster has done very much to obscure its later history.

The situation of that cathedral which looks down upon the golden vale of Tipperary from the renowned rock of Cashel is entirely unrivalled in Ireland, and the building itself is one of the most original and impressive in the island. It consists of a very massive central tower with a long and lofty quire and transepts, each having two east chapels, a very short aisleless nave of only two bays with a large porch north and south, and a military west tower, which formed the main part of the residence of the Primate of Munster. A very fine old round tower joins the north transept in its north-east corner. Cormac's chapel extends irregularly between the south transept, out of which it opens, and the quire.

Beside the holy fire of St. Bridget at Kildare, an English bishop, Ralph de Bristol (1223-32), erected another fortified cathedral on a site which, like the rock of Cashel, is still dominated by a Celtic round tower. This latter structure stands over a hundred feet high, but its appearance is very much spoilt by the fact that modern battlements have replaced the ancient conical cap. The most striking feature of the cathedral is the series of arches that spring from buttress to buttress and carry the parapet walks along the eaves of the aisleless nave and choir.

This peculiarity of heavy external arches under the parapet is also found in the early fourteenth century quire of the cathedral at Tuam, but on a less bold scale than at Kildare. The Tuam quire was erected east of the chancel, and is unconnected with the older part by an arch or even by a door.

Outside Dublin the finest of Irish cathedrals is the beautiful church of St. Canice at Kilkenny, a structure worthy of note from the way in which it produces much of the true cathedral effect without either triforium or vaulting. The round tower which still stands by the south transept probably belongs to the last half of the tenth century. The cathedral is of extreme simplicity, though the east end of the choir has a really magnificent effect, and the north transept is entered through a very remarkable door. Of Irish cathedrals, Kilkenny alone is rich in sepulchral monuments, and while these as individual works are rather crudely carved and in most cases moved from their original positions, the general effect they produce is superb.

For beauty of thirteenth century detail the cathedral of St. Flannan at Killaloe is certainly unsurpassed in Ireland.

The marvellous beauty of the best work of the fourteenth century in England (so superbly represented in the quire of Selby Abbey) is in Ireland almost unknown, and the commonplace and towerless cathedral at Cloyne, built within that period, is remarkable as showing how very poor a structure could suffice for the mother church of an ancient and not unimportant diocese.

A great disappointment is in store for the antiquary who, without previous knowledge, visits the metropolitan church of all Ireland, the primatial cathedral at Armagh, the burial-place of the renowned Brian Boru.

A most interesting example of very late Gothic work is presented in the small and rather remotely situated cathedral of Old Leighlin, co. Carlow, a church which was remodelled and to a great extent rebuilt by Mathew Sanders, bishop 1527-49. The most curious feature of the building is that it exactly follows the plan which in Ireland is usual in the churches of friars. The aisleless nave has transepts at its eastern end; a tunnel tower rises over the west end of the quire, whose very large north chapel communicates only by a door.

In the cathedral of St. Columba at Derry, erected by the citizens of London in 1633, we have one of the most interesting examples that exist of the restored Gothic of Jacobean age. In type it is an ordinary parish church. A distinguishing feature is the existence of rood turrets at so late a date. The exterior might at first sight be taken for a church in the last age of true Gothic, say about 1500.

The question of placing a further piece of land in Cathays Park, Cardiff, at the disposal of Glamorgan County Council for a future extension of the offices came up at the last Cardiff Property Committee meeting. The city engineer (Mr. W. Harpur) said it would be a pity not to consider the matter, and perhaps stimulate competition on the part of other places for, say, an education office. It was decided to inspect the site at the next meeting of the committee.

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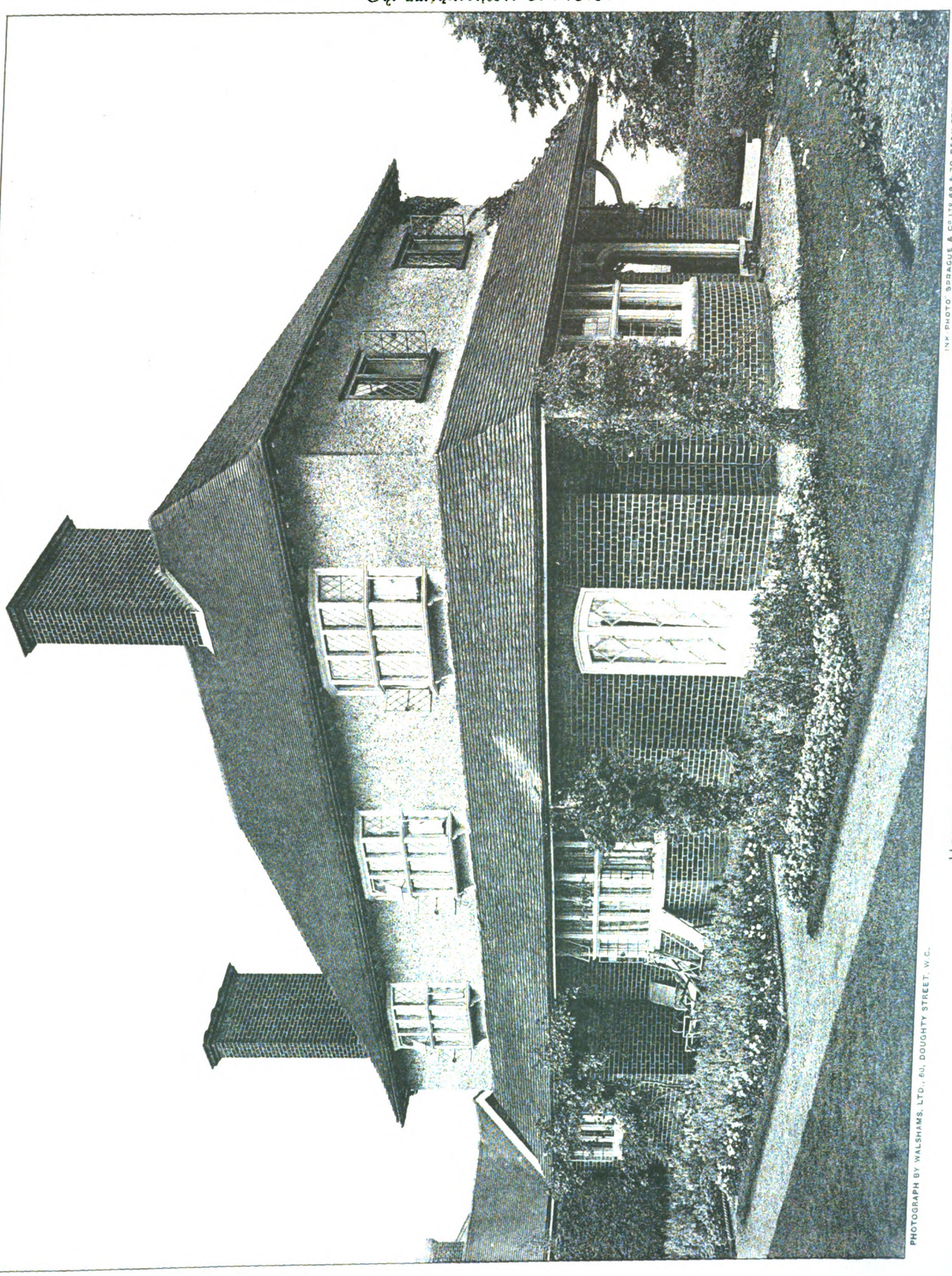
HOUSE AT GOLD HILL, CHALFONT ST. PETERS

Mr. FRANK PECK, F.R.I.B.A., Architect.

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HOUSE AT GOLDERS HILL, [illegible]

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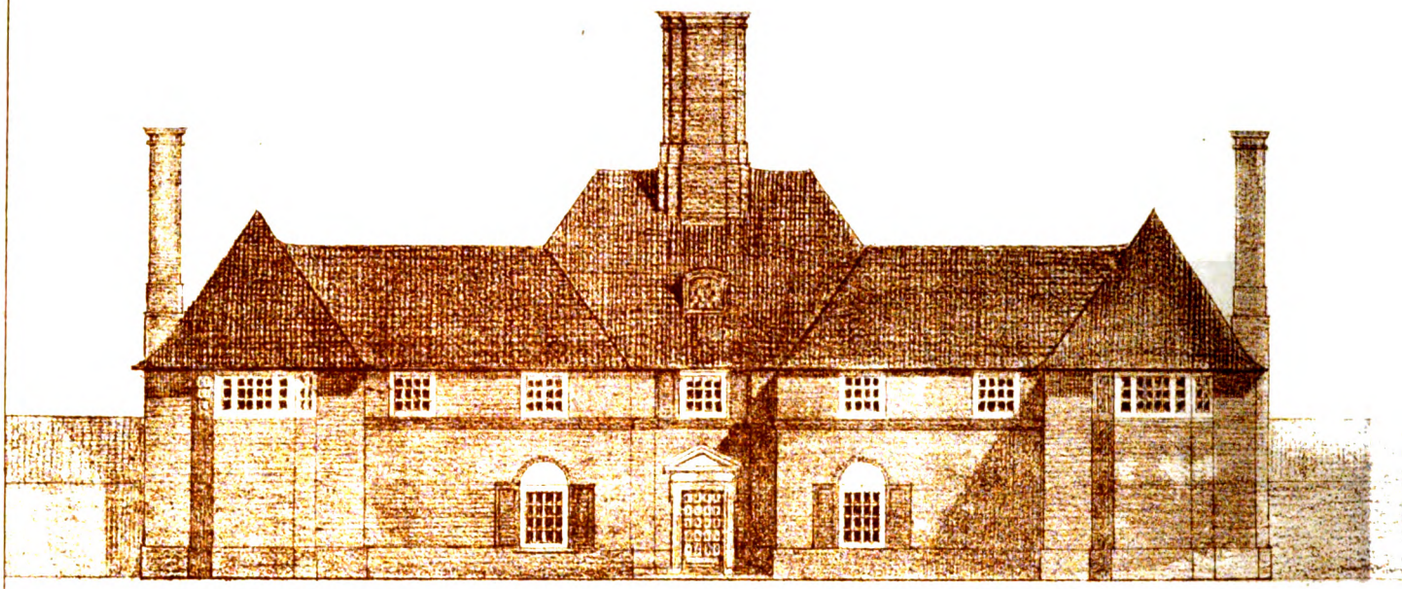
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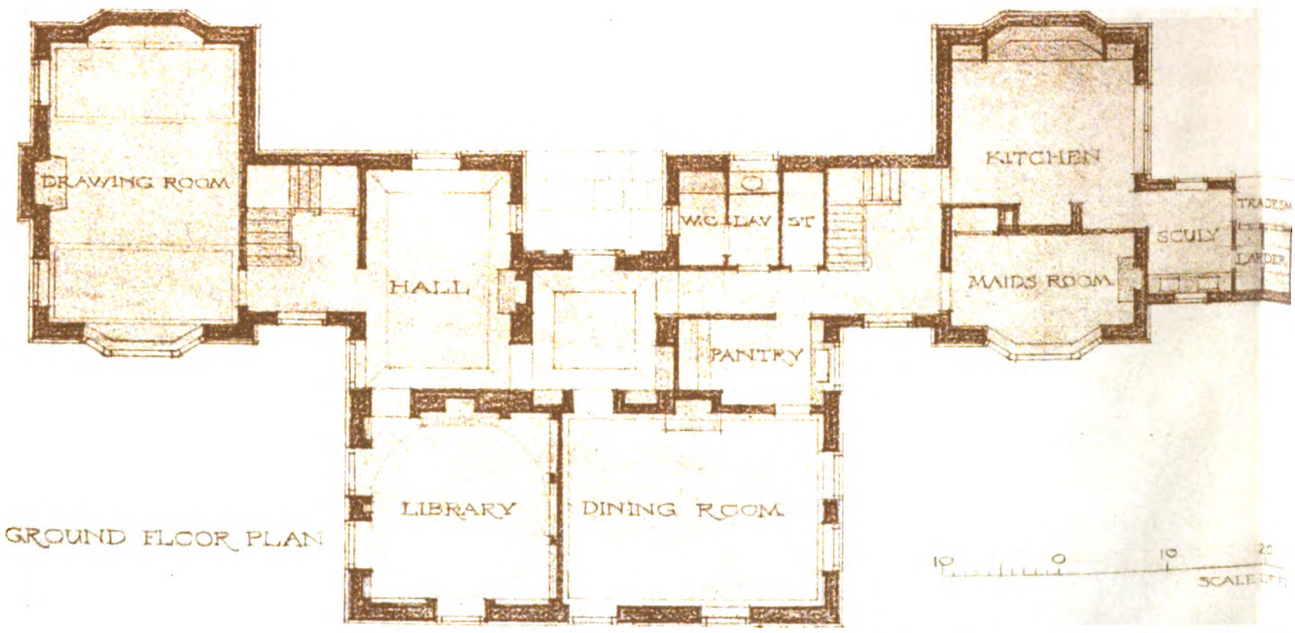
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NORTH ELEVATION



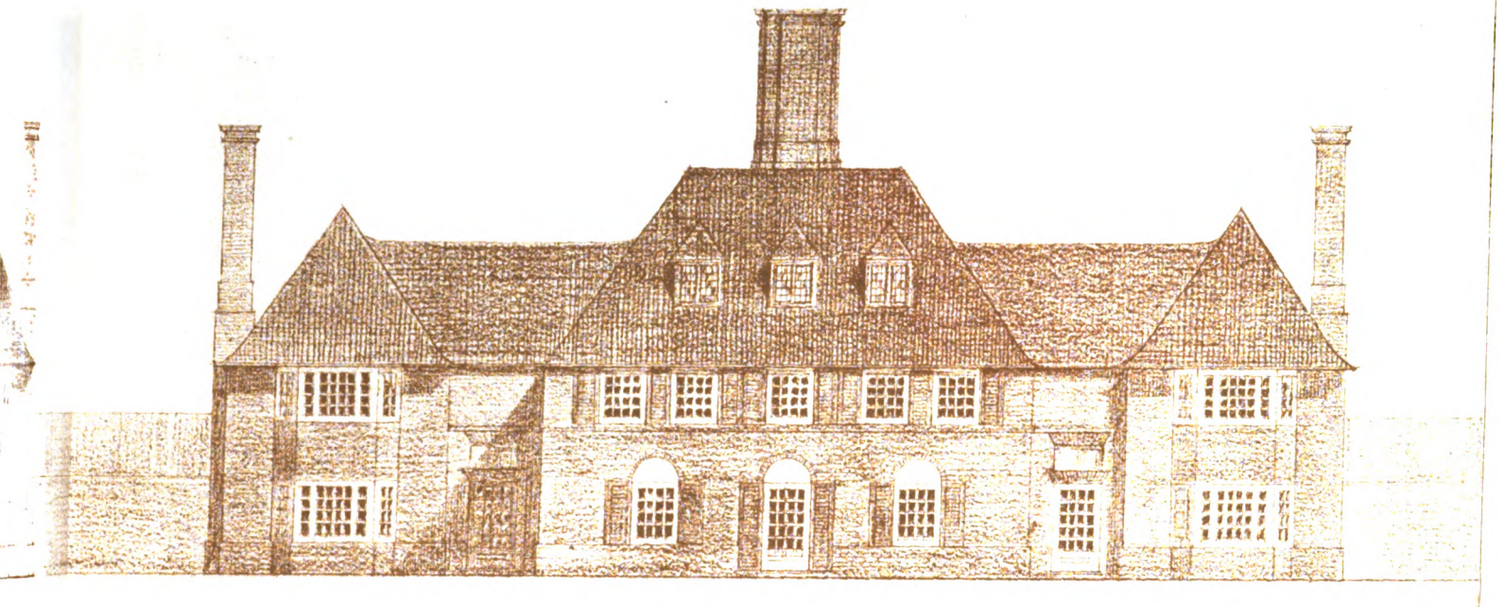
GROUND FLOOR PLAN

HOUSE AT FOREST R

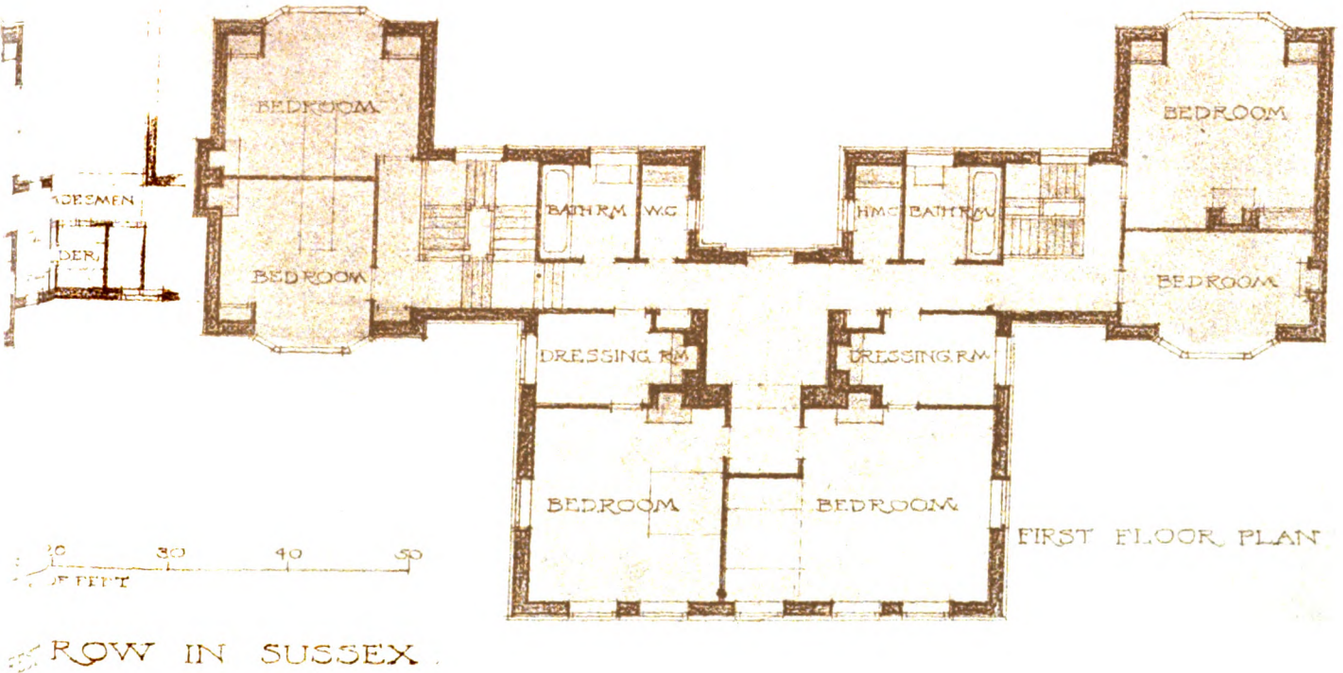
MR. W. CURTIS GREEN

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SOUTH ELEVATION



FIRST FLOOR PLAN

ROW IN SUSSEX.

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NOTES ON BOOKS.

"Practical Shop Mechanics and Mathematics." By J. F. Johnson. (New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd. Price 4*s*. 6*d*. net.)

THE Wiley Technical Series (edited by Mr. J. M. Jameson) already numbers over four dozen manuals, dealing with the subjects of electricity, heat, agriculture, drafting, mathematics, and mechanics. The notes in the book under review are stated to be "based upon teaching experience among these tradesmen and upon shop practice covering a period of nine years." A *résumé* of the contents of the eight chapters will indicate the scope of the work—materials, measures and weights and measuring instruments, pulleys and belting, tooth gearing, force and its relation to work, forces, stress and strain, angle measurements, with an appendix of useful tables. We may dismiss the index with the remark that the reference to sections instead of pages, in the absence of a preliminary note, is very misleading and confusing.

Respecting zinc, we do not know the U.S. customary use, but over in England its extended employment for roofing purposes would be noted in any text-book. And lead pipes, when lined with tin, are so treated more with the idea of protecting the water than protecting the pipe. Mr. Johnson makes the same mistake as Mr. Burdette Dale makes in another of this series in allotting 7½ gallons of water to a cubic foot of space; or is it possible that the editor or some compositor has made the alteration in the two texts? The chapter on stress and strain is good, as is also that on angle measurements. Some very clear diagrams accompany the chapters.

"Arithmetic for Carpenters and Builders." By R. Burdette Dale, B.M.E., M.E. (New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd. Price 5*s*. 6*d*. net.)

THIS manual is one of the Wiley Technical Series, edited by Mr. J. M. Jameson. In the course of its sixteen chapters, illumined by more than one hundred diagrams, the writer presents his subject in a form that should prove acceptable to those whom he seeks to reach. There is no need for even the half-apology (contained in the preface) for including the elementary information of the earlier chapters; but at times the attempted simple explanations are a trifle more confusing than no explanation at all; in fact, the latter may be thoroughly favoured in such a case as, for example, the examples of the four simple arithmetical rules contained on pages 4 and 5. Incidentally, we may express our irritation with the constant phrase "do so-and-so *to get* such-and-such a result"; we *do*, as a fact, obtain 35 in dividing 70 by 2, but we do *not* divide 70 by 2 in order *to get* 35; that is all the difference. The example on page 20 for adding fractions is very lucidly set out. We cannot, of course, take page by page, chapter by chapter, to analyse for good and indifferent points; we would, indeed, prefer the contents of chapters v. and vi. to be transposed. A couple of unfortunate blunders that we noticed may be called attention to both for the sake of readers and author; on page 125 (in the last complete paragraph, second line) the word "right" should read "left"; and the radius of a circle is, of course, *half*, not "twice" the diameter (see page 133).

We do not understand Mr. Dale's claim that a cubic foot will contain 7½ gallons of water; 6¼ is the correct measure.

But let it be understood that we accord this little book the welcome which we anticipate will be also accorded to it by others.

"Mensuration Made Easy; or, the Decimal System for the Million." By Charles Hoare. Twenty-fifth edition. (London: Effingham Wilson. Price 1*s*. net.)

THE popularity of this little manual is made apparent by the number of editions which have already met with public approval, and we may add our testimony to the general merits of Mr. Hoare's work; but it is to be regretted that he should sound such an absurd flourish of trumpets as we encounter in his address. A twenty-fifth edition scarcely requires critical reviewing, but we may perhaps offer a few remarks. The definitions and the contents of the text are in general clear and acceptable, but hyperbole is not suitable in a text-book, and Mr. Hoare is apt to allow his enthusiasm to develop on such lines. Some of the typal figures are very badly displayed, as on pages 19 to 22. On page 49, in the note to Rule 40, the page reference has not been filled in. The rule (No. 53) given on page 58 to calculate the number of pieces of paper for the walls of an apartment seems to answer fairly well, though most surveyors will still probably adhere to the more accustomed method. Useful tables are given, but apparently Mr. Hoare does not regard an index as necessary. He may be right, but we certainly think it a desirable feature.

ARCHITECTS AND THE INCOME TAX.

THE following correspondence appears in the "Journal" of the Royal Institute of British Architects:—

No reply having been received to the letter addressed by the President R.I.B.A. to the Chancellor of the Exchequer (printed in the "Journal" for November 6, p. 9) the following further letter was sent:—

November 15, 1915.

To the Rt. Hon. R. McKenna, P.C., M.P.,
Chancellor of the Exchequer.

SIR,—The President of the Royal Institute of British Architects desires me to say that his Council will very greatly appreciate a reply to his letter of October 25 on the subject of the income tax paid by architects. They realise the heavy burden of public business which is now imposed on the Ministers of the Crown, and they are anxious not to add to it unnecessarily, but at the same time they feel that it is most urgent that the attention of the Government should be called to the painful position in which so many members of the architectural profession will soon find themselves unless steps are taken to relieve them from the payment of income tax for a period during which they have earned nothing. The fact that their difficulties are—no doubt unavoidably—the direct result of the Government's action in stopping building operations affords an additional reason for special consideration being granted to them.—I have the honour to be, Sir, your obedient servant,

IAN MACALISTER, *Secretary, R.I.B.A.*

The following reply has been received:—

Treasury Chambers, Whitehall, S.W.
November 26, 1915.

To the Secretary, Royal Institute of British Architects.

DEAR SIR,—With reference to your letters of the 15th instant and 25th ultimo on the subject of income tax, I am desired by the Chancellor of the Exchequer to say that for the purposes of taxation it would not be practicable to draw distinctions between the various classes of businesses which in different ways have especially suffered from the war, or to say how far the income of one or another had been directly affected by Governmental action.

Individual cases of special hardship cannot be provided for by legislation, and it is suggested that as and when they arise they should be brought to the notice of the Board of Inland Revenue, with a view to any such postponement of payment as in the circumstances it may seem fit to allow by administrative action.

I am to add that the tax payable for future years would, of course, be affected by the inclusion in the average of the small profits of the years of depression.—Yours faithfully, H. P. HAMILTON.

MR. EDWARD PALK BOVEY, of Briarfield, Torquay, builder and contractor, who died on May 10, has left £22,159.

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Bath.—Pulteney Hotel; Empire Hotel.

Bury.—Brunswick Chapel, Nightingale Hospital.

Birmingham.—Halesowen Grammar School, Wolseley Motor Works, Barnsley Hall Asylum, Bromsgrove.

Broadmoor.—Criminal Lunatic Asylum.

Barnsley.—Workhouse; Infirmary; Baths and 8 Council Schools.

Brighouse.—Clifton Church.

Chester.—Town Hall.

Chadderton.—Town Hall.

Derbyshire.—Darley Dale, St. Elphin School.

Glasgow.—Blythwood Hotel; Masonic Halls, Rutland Crescent; City Bakeries, Ltd.; Salvation Army, Bath Street; Imperial Tobacco Co., Tobago Street; Port Dundas Distilleries; John Miller, Ltd., Printers, 322-334 St. George's Road; Kilmun Seaside Homes.

Leeds.—Town Hall; Municipal Buildings; Pearl Buildings; Market Hotel; Meadow Lane and Marsh Lane Police Stations; Kirkstall Road Baths; Free Libraries; Eldon Chapel; Beeston and Hunslet Wesleyan Chapels; Sion Chapel, Skinner Lane; Small Pox Hospital, Killenbeck.

Liverpool.—"Meccano" Works; Grove Hotel, Wallasey; Mariners' Home; Merchant Taylors' School; Majestic Picturedrome; Synagogue, Princess Road; Tivoli Theatre and Café; Penrhyn Street Council School; Rice Lane Model Council School, Hope Street Technical School, Clarence Street Secondary School.

Manchester and District.—Victoria Hotel, First-class Dining Rooms, Central Station; Lake Hotel, Belle Vue; Karlomah Café, St. Anne's Square; St. Wilfred's Church, Hulme; Nursing Home, Old Trafford; School of Technology; Art School; Geographical Society's Buildings, St. Mary Parsonage; Palatine Buildings; Picturedrome, Pendleton; Whittlebrook Chapel, Walkden; Trafford Arms, Alderley Edge; Axe and Cleaver Hotel, Altrincham; Bridgwater, Eccles, Crown Hotel, Longsight.

Nottingham.—Mikado Café.

Oldham and District.—St. James' Church; Free Library and Art Gallery; Infirmary, Imperial Picture Palace, Reform Club.

St. Helens.—Borough Sanatorium, Provident Hospital, and Council Schools.

Sheffield.—St. Jude's Church; Christchurch, Pitsmoor; Sanderson Bros., Newbold; Sword and Bayonet Works; Heeley Picture Palace; Victoria Hospital.

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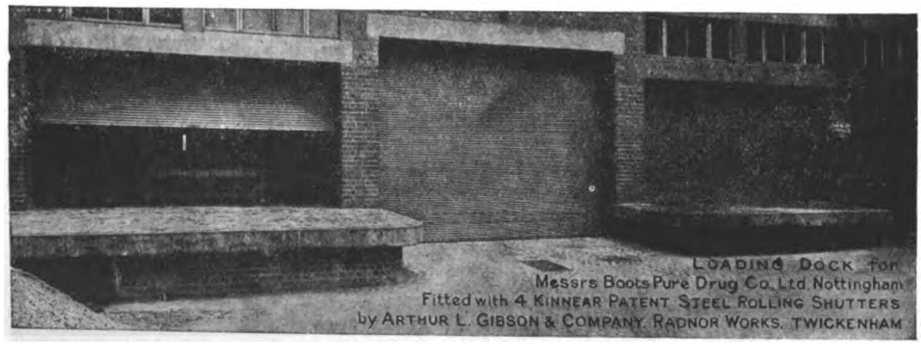
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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Architects' War Service Form.

SIR,—After the very helpful co-operation of your paper in the circulation of the War Service Form last month, your readers may be interested to hear something about the response to this scheme for organising the national efforts of the profession. The forms already returned to my committee considerably exceed a thousand, about one-half of the applicants being of military age, though, of course, by no means all fit for military service. The committee's efforts have so far been chiefly centred in dealing with these applicants.

The various changes brought about by the operation of Lord Derby's scheme have not lightened the committee's labours.

It is hoped that applicants for civil work will be dealt with early in January, and it may be stated in advance that the openings as munition workers seem alone likely to offer any extensive field in this direction.

It has been ascertained that no appointments are to be expected unless candidates have been through a six weeks' course in one of the many "munition schools" now provided at technical centres all over the country, and this opportunity is taken of recommending all applicants for such work to begin at once such a course, so that they may have obtained the required qualification by the time it is possible to prepare selected lists for such work with a view to approaching the munition authorities.—I am, Sir, yours,

ALAN E. MUNBY,
Hon. Secretary, Selections Committee.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—Workshop, St. Cuthbert's Street, for Wynyard Cycle Company.

BUCKINGHAMSHIRE.

Aylesbury.—House, Mill Street, for Mr. H. E. Rickard.

Farnham Common.—"The Brambles" p.h.: additions and alterations.

CHESHIRE.

Runcorn.—Cottage Hospital: extension (£500).

CORNWALL.

Trewidden.—Farmhouse: additions and alterations. Mr. H. White, F.R.I.B.A., architect, 18 Lanoweth Road, Penzance.

CUMBERLAND

Carlisle.—Holme St. Cuthbert's Church: tower. Mr. J. H. Martindale, F.R.I.B.A., architect, Castle Street.

DERBYSHIRE.

Ashbourne.—Motor garage, King Edward Street, for Mr. J. Harrison.

DORSET.

Swanage.—Cinema, Station Road. Mr. A. W. Pond, builder, Princess Road.

Garage, back of Princess Road, for Mr. Arscott.

DURHAM.

Lanchester.—Elementary schools for 120 places.

GLOUCESTERSHIRE.

Cirencester.—The "Three Companies" Inn, Castle Street: additions.

Newent.—The "Plough" Inn: alterations.

HAMPSHIRE.

Winchester.—Garage, City Road. Mr. B. D. Cancellor, architect, 12 Jewry Street.

HERTFORDSHIRE.

Barnet.—Nos. 170-174 High Street: rebuilding. Messrs. White, Son & Pill, architects.

Watford.—Vicarage for St. Mary's Church Trustees.

HUNTINGDONSHIRE.

Huntingdon.—Proposed artisans' dwellings, Stoney Close.

ISLE OF WIGHT.

Cowes.—Three houses, Park Road. Messrs. J. Ball & Son, builders, Victoria Road.

Shanklin.—Motor-house, Blenheim, for Mr. Bryan Welch.

KENT.

Folkestone.—Hippodrome, Linden Crescent. Mr. F. J. Cox, architect, 2 Verulam Buildings, Gray's Inn, London.

LANCASHIRE.

Barrow-in-Furness.—Four cottages, Westmorland Street. Exors. of T. Brown, builders, Westmorland Street; also

Shop and houses, Ainslie Street.

Electricity Works: additions, for the Council.

Two houses, West Avenue, for Mr. W. Tims.

Two lock-up shops, Euryalis Street, for the Walney Housing Company.

Power station, Cavendish Park, for Messrs. Vickers.

Blackburn.—Two houses, Langham Road. Mr. H. Thompson, builder, East Park Road.

House, Lynthorpe Road, for Mr. T. Longworth.

Two houses, Preston Old Road, for Mr. E. Wood.

Motor garage, Whalley New Road, for Messrs. Andrews & Bradley.

Premises, Pollard Street: extension, for Messrs. F. J. Chew & Co.

Warehouse, Dickens Street, for Messrs. Eli Heyworth & Sons, Ltd.

Cleveleys.—Bungalows, West Drive, for Mrs. Pilling.

Hindley.—Six houses, Jacob Street, for Messrs. Liptrot & Co.

Liverpool.—Proposed picture theatre, Richmond Row and Great Richmond Street, for Mr. J. D. Sothern.

LINCOLNSHIRE.

Boston.—The Quay Picture Palace: alterations.

Machine shops at the Dock: additions, for the Noston Deep Sea Fishing Company.

The "Scala" Theatre: additions and alterations.

Cleethorpes.—Motor 'bus garage, Pelham Road, for the Grimsby Street Tramways Co.

Six houses and a bungalow, Brooklands Avenue, for Messrs. Hewson & Chapman.

NORTHUMBERLAND.

Whitley Bay.—Two villas (£1,000). Messrs. Harrison & Ash, architects, 14 Grey Street, Newcastle-on-Tyne.

SOMERSET.

Taunton.—House, Cyril Street West, for Mr. H. J. Handell.

STAFFORDSHIRE.

Hammerwich.—Military Hospital: extension.

Penkridge Bank.—Cinema theatre, for Messrs. McDonald & Sheriden (of Birmingham).

SURREY.

Guildford.—Business premises, High Street, for Mr. W. C. Spikins.

SUSSEX.

Aldrington Basin.—Buildings, for the Asiatic Petroleum Company, Ltd.

Eastbourne.—"De Walden Court": additions. Mr. F. G. Cooke, architect, 2 Hyde Gardens.

House, Paradise Drive, for Mr. A. W. King.

Two houses, Victoria Drive, for Mr. A. G. Ticehurst.

"Carlton Lodge," Devonshire Place: additions and alterations. Messrs. Oakden & Stevens, architects, 10A Cornfield Road.

No. 48 Grove Road: additions. Mr. P. D. Stonham, architect, 58 Grove Road.

"The Grange," St. Anne's Road: additions. Mr. W. H. Murray, A.R.I.B.A., architect, 24 Gildredge Road.

"St. Vincent's Lodge," Silverdale Road: motor-houses. Mr. C. Breach, builder, Meads.

Martello Laundry, Myrtle Road: additions. Mr. B. Earp, architect, Bolton Road.

No. 6 Old Orchard Road: addition. Mr. A. Ford, architect, 7 Gildredge Road; also

Store, St. Anthony's Avenue.

Felpham.—House, Felpham Beach Estate, for Mr. H. A. Hays.

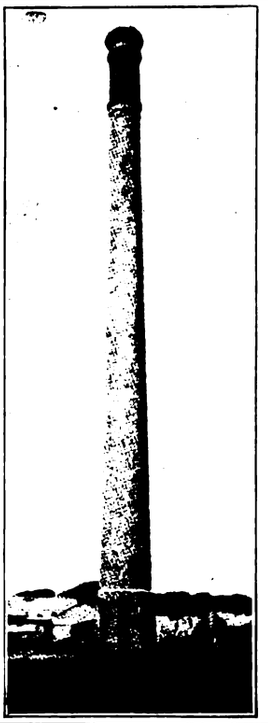
WARWICKSHIRE.

Birmingham.—Business premises, Great King Street (£6,000). Messrs. Gateley & Parsons, architects, 105 Colmore Row.

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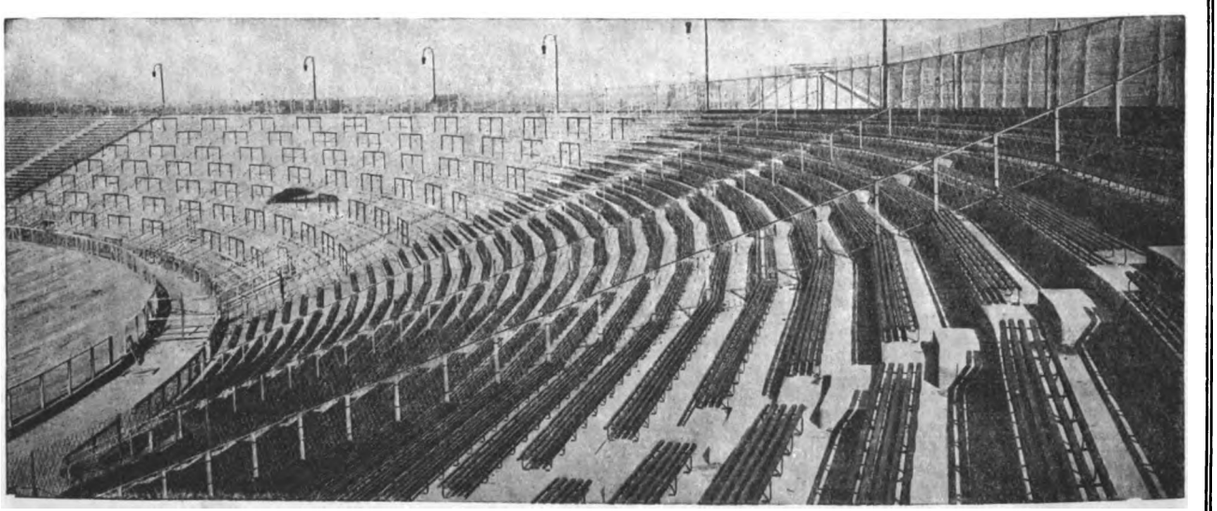


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ENGLAND—*continued.*

WARWICKSHIRE—*continued.*

Coventry.—Factory, Canley and Tile Hill Lanes, for the Standard Motor Company, Ltd.
Factory, Far Gosford Street: additions, for Messrs. Calcott Brothers.
House, Allesley Old Road. Mr. B. Ault, builder, Spon Street.
The "Pilot" Inn, Much Park Street: additions and alterations, for Messrs. Mitchells & Butlers, Ltd.
Oil stores and new buildings for the Triumph Cycle Co., Ltd.
Workshops, &c., Spon Street, for Messrs. Rudge-Whitworth, Ltd.

Polesworth.—Six houses and a shop, Dordon Road, for Mr. J. Hope.

WILTSHIRE.

Salisbury.—Church. Messrs. George Baines (F.R.I.B.A.) & Son, architects, 5 Clement's Inn, London.

YORKSHIRE.

Leeds.—Malgate Mills: alterations. Messrs. Carby Hall & Dawson, R.I.B.A., architects, Prudential Buildings, Park Row.

Linthwaite.—Three houses, Hollins Row, for Mr. G. Mulligan.

Pickering.—Three cottages, Southgate, for Mr. J. Frank.

Rossington.—Colliery church.

Wibsey.—Motor garage, Thorncroft Road, for Miss Lee.

WALES.

Burry Port.—Four houses, near Derwydd, for Mr. Faulkner.

SCOTLAND.

Buckie.—Garage, High Street, for Mr. G. Webster.
House, near railway station, for Mr. A. Gray.

Glasgow.—Premises, Wallace Street, South Side: extension, for Messrs. Campbell, Achnach & Co., Ltd.

Greenock.—Works, Bogston: extension, for the Western Chemical Company.

Larbert.—Central School: enlargement.

Mossend.—One hundred and fifty cottages for munition workers (£39,500).

IRELAND.

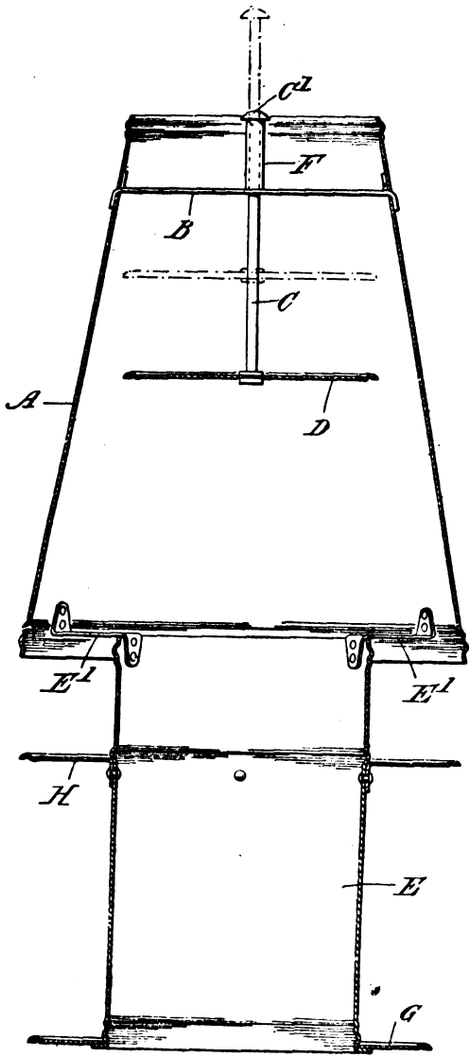
Dublin.—Dental Hospital, Lincoln Place: additions and alterations (£3,600).

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 8,998. Oct. 8, 1914.—Chimney-cowls, Ventilators, and the like. T. N. Atkinson, 13 Gerrard Street, W.C.—This invention relates to improvements in chimney-cowls, ventilators, and the like, and has for its object to prevent downdraught therein and to maintain an updraught due to the action of wind pressure in whatever direction the wind may be blowing. In the drawing a cone-like hood A, open top and bottom, has rigidly secured inside it near its upper end a diametrically disposed narrow bar B. From the cross-bar B is suspended by means of a rod or bolt C, passing through a hole in the cross-bar B, a single flat disc or plate D, which is slightly larger than the diameter of the flue-pipe E, and which serves as a baffle-plate or deflector. The flue-pipe E may be composed of the same material as that of the hood A, and may be connected therewith by means of brackets E^1. The flue-pipe E may be conveniently passed over the ordinary chimney-pot surmounting the chimney-stack, or may be used to replace it. An annular deflector H surrounds the flue-pipe E slightly below the lower end of the hood A, and the diameter of the deflector H is substantially the same as that of the lower end of the hood A. The deflector H is parallel to the plane of the bottom of the hood A, and is at such a distance below the end of the hood A as to leave a clear passage for the air, but to prevent an upward draught passing vertically into the annular opening between the hood A and the pipe E. Secured to the cross-bar B in any convenient manner is a tubular guide F for the rod C, which latter has a button or stop C^1 to limit its downward movement within the guide F. The guide F is of such dimension and formation that it will permit vertical sliding movement of the rod C within it, but will prevent lateral movement of the rod, and hence lateral movement of the plate D. It has been found in practice that previously where discs have been suspended so as to be capable of lateral movement, say during a strong wind, the efficiency of the cowl was interfered with and was also accompanied by an objectionable creaking



noise. By the provision of a guide such as F these two objectionable features are overcome. The suspended disc is designed to move vertically to allow the brush, when the chimney is being swept, to reach near to the top of the cone, and therefore to permit the chimney to be swept cleanly without necessitating removal of the cowl. An intermediate position which it may occupy is shown in dotted lines. Also when required a step or flange such as G may be provided on the bottom of the lower edge of the chimney-portion or flue-pipe of the cowl, so that the structure may, as a whole, be affixed thereby to the stack-top.—Oct. 13, 1915.

MESSRS. WILLIAM & T. R. MILBURN were the architects for the reconstruction of the Cardiff Empire which has just been completed. The front of the building in Queen Street is of Portland stone, and the style of architecture Italian renaissance. The central openings lead into a porch, the walls of which are lined with Welsh marble, and then by a magnificent staircase to the waiting halls Upon entering the auditorium one is impressed with its spaciousness. The auditorium is divided into fauteuils, stalls, and pit stalls. Above is the grand circle, and above that the balcony and gallery. There are 1,200 tip-up chairs on the ground floor. There is accommodation in the grand circle for 500, seats for 570 in the balcony, and for 550 in the gallery. The private boxes occupy the usual side positions, and extend right round the grand circle. The general contractors were Messrs. Turner & Sons, of Cardiff.

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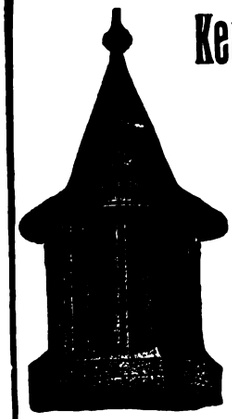
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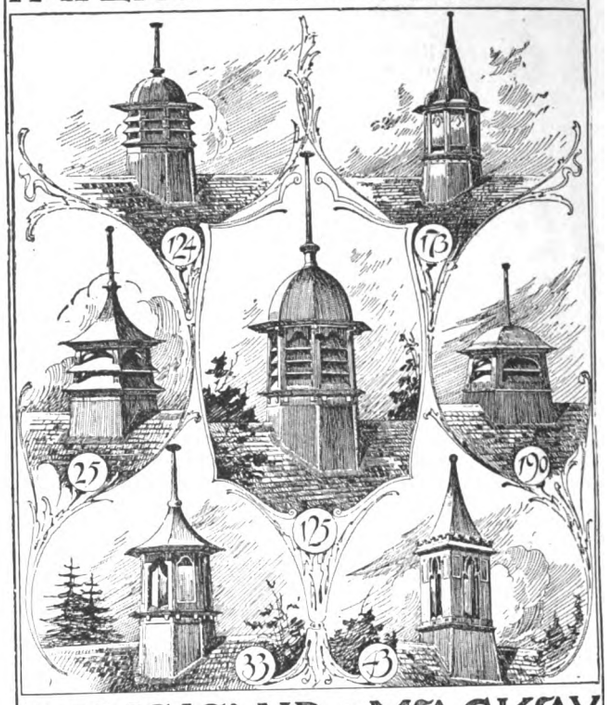
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